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Report

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TENTH BIENNIAL REPORT

OF

**The Department of Conservation
and Development**

OF THE

STATE OF NORTH CAROLINA




BIENNIUM ENDING JUNE 30, 1944

TENTH BIENNIAL REPORT
OF
THE DEPARTMENT OF CONSERVATION
AND DEVELOPMENT
OF THE
STATE OF NORTH CAROLINA
For the Biennium Ending June 30, 1944

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LETTER OF TRANSMITTAL

Raleigh, N. C.
October 15, 1944

TO HIS EXCELLENCY, HON. J. MELVILLE BROUGHTON
Governor of North Carolina

Sir:

In accordance with Section 11, Chapter 122, Public Laws of 1925, and by direction of the Board of Conservation and Development, I have the pleasure of submitting herewith the Tenth Report of the Department of Conservation and Development for the biennium ending June 30, 1944.

There are shown in this report a review of the activities of the Department during the last two-year period and a financial statement for the biennium.

Respectfully submitted,
R. BRUCE ETHERIDGE,
Director.

400723

DEPARTMENT PERSONNEL AND PRINCIPAL OFFICERS

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PAUL KELLY, *Assistant Director*
W. RAY BISHOP, *Auditor*
MRS. ETOYAL P. HOBBIE, *Senior Accounting Clerk*
EULA LINCOLN, *Senior Accounting Clerk*
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D. M. DAVIS, *Assistant Commissioner*
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MARY E. WILLIS, *Senior Stenographer-Clerk*
N. McKEITHEN CALDWELL, *District Sanitarian*

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PAUL KELLY, *Industrial Engineer*
JAMES E. COAD, *Executive Secretary, War Industries Coordination Committee*
PHILIP SCHWARTZ, *Industrial Analyst*
NELL WELLONS, *Senior Stenographer-Clerk*
MARY LEE COWPER, *Senior Stenographer-Clerk*
MRS. VIRGINIA ANDERSON, *Junior Stenographer-Clerk*

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W. K. BEICHLER, *Principal Forester*
P. A. GRIFFITHS, *Senior Forester*
R. J. PEARSE, *Acting Superintendent of State Parks*
P. W. TILLMAN, *Senior Forester*
A. B. SMITH, *Associate Forester*
H. G. BOLICK, *Assistant Superintendent of State Parks*
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J. H. RUFF, Rockingham

W. L. BREWER, JR., Fayetteville

SENIOR FORESTER: MANAGEMENT

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ACTING DISTRICT FORESTERS

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F. L. HOOKER, New Bern

E. C. FEREBEE, Rocky Mount

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ED WILSON, Mount Mitchell

GRADY L. MILLS, Morrow Mountain

JESSE LONG, Hanging Rock

J. W. KISTLER, Crabtree Creek

THOMAS F. DAVENPORT, Phelps Lake

NURSERYMEN

MOODY M. CLEMMONS, Clayton

PELZIE HAMILTON, Crab Creek

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L. E. WARRINGTON, New Bern

H. G. FARTHING, Boone

R. E. WEST, Moyock

R. F. LOGAN, Chapel Hill

C. N. WOOLARD, Wilson

FRED C. OTT, *Superintendent Game Farm*, Fayetteville

C. N. MEASE, *Chief Refuge Supervisor*, Marion

J. H. LONGSHORE, *Chief Refuge Supervisor*, Asheville

FRANK W. EATMAN, *Coordinator. Pittman-Robertson Projects*, Raleigh

MISS ELSIE PROCTOR, *Senior Stenographer-Clerk*

LYMAN DEBERRY, Mt. Gilead, *Project Leader*

L. B. HOPKINS, Raleigh, *Project Leader*

GAME MANAGEMENT

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MARY WEATHERS, *Junior Stenographer-Clerk*

FISH HATCHERY SUPERINTENDENTS

R. B. ARMFIELD, *Supervisor of Fish Resources*
Morrison Hatchery, LEO F. REIGER, Waynesville
"Pete" Murphy Hatchery, LUTHER SKAGGS, Marion
Marmon Hatchery, CLYDE ANDERSON, Pineola
Roaring Gap Hatchery, GUY C. WALLACE, Roaring Gap

DIVISION OF MINERAL RESOURCES

JASPER L. STUCKEY, *State Geologist*
W. A. WHITE, *Assistant State Geologist*
W. A. REID, *Associate Chemist*
JANE ANDERSON, *Junior Stenographer-Clerk*

DIVISION OF STATE ADVERTISING

W. P. SHARPE, *Manager*
JOHN G. HEMMER, *Senior Publicity Specialist*
MRS. DOROTHY LEWIS, *Senior Stenographer-Clerk*
MRS. MARGARET MANN, *Senior Stenographer-Clerk*
MRS. FAYE BRANCA, *Junior Stenographer-Clerk*
MRS. CLALEE DUNAGAN, *Junior General Clerk*

DIVISION OF WATER RESOURCES AND ENGINEERING

W. H. RILEY, *Acting Chief Engineer*
F. E. DAY, *Associate Engineer*
FRANCES MOORE, *Junior Stenographer-Clerk*

REPORT OF DIRECTOR

During the entire period covered by this report (1942-44), the country has been at war. Problems and difficulties never before encountered have arisen in the operation of the Department, and the greatest opportunity for service has been presented.

Intensified interest has been directed toward many of the functions of the Department. On the other hand, it has been manifestly impractical to continue on full scale some of the activities. The Department prides itself, however, in the fact that it has not permitted any important feature of its work to lapse entirely during this strenuous period.

Our greatest problems have been brought about by the shortage of manpower and the inavailability of equipment and supplies. Many of our key men have gone into the services and others have left the Department for defense jobs. It has been almost impossible to replace personnel, partly because of the inavailability of men and also because the Department has not been able to compete with salaries paid elsewhere.

Perhaps the most lasting impression of the war on the program of the Department has been the emphasis it has placed upon conservation. This, of course, has not always been evident and perhaps more often not discernible and only indirect. Never in our history has there been such a drain on our natural resources as has been experienced during this mechanized war. The demand on our farms, forests, and minerals has been without precedent. In the haste and speed demanded by war it has not always been possible to handle these resources in the most economical manner and some rehabilitation will be necessary in order not to spoil the future utility of some of our resources.

The fact that the country has been able to arm so quickly and effectively was made possible only by the fact that this country was so fortunately endowed with an abundance of raw materials. Well might the nation shudder to think what might have happened had it not been able to call for and have placed at its disposal the raw materials for the manufacture of the almost countless articles necessary for its protection. Without these resources the country might have been just another victim of a ruthless foe.

Out of this conflict there has come, however, a warning that even though the resources of the country are the envy of the world, they may be depleted to such an extent as to impair our ability to defend ourselves and to deprive the people of the enjoyment of conveniences and even necessities in the future. At times during the war, shortages of what had previously been considered almost inexhaustible resources threatened to impair the entire war effort and to prolong the struggle. Not only was the need for better conservation practices demonstrated but the necessity for a more thorough knowledge of certain resources was pointed out. If we are a wise people, these lessons will be put into practice.

Use of the State's and Nation's natural resources has taken the natural course during the war period—that is emphasis has been placed on speedy production to meet immediate demands. It has not been practical often to eliminate waste which is often a part of haste in harvesting and utilizing natural resources. However, the fact that conservation of natural resources was not a foremost consideration makes such practices more essential in the future.

Additional demands for a more thorough conservation program to repair the waste of war will, it is contemplated, be reflected in the budget requests this fall. Another

cause for an expanded postwar conservation activity is the provision of needed and beneficial public improvement projects which will provide a reservoir of work if a program of this nature develops after the war. By this means any emergency work program could be guided into constructive channels which would not otherwise be available.

DEPARTMENTAL ACTIVITIES

Commercial Fisheries: Predominance of good prices and unusual demands have more than offset other handicaps which the fishermen have faced during the past two years. Considering all factors, the past biennium has been one of the most successful ever experienced by the commercial fishermen of the State.

Fewer fishermen have been engaged in their pursuits than for a similar period in a number of years. Many fishermen have gone into the armed services, others have been employed in war industries, and an appreciable number of fishing boats have been taken over by the government. In addition, some of the most valuable fishing waters have been restricted for defense purposes.

In spite of the handicaps faced by the industry, generally, the production of commercial fisheries was greater in quantity, and the return to the fishermen was considerably higher than during the preceding biennium. Prices so much higher than the normal have prevailed that the cash paid to the fishermen was considerably higher than normally. The total value of all water products reached \$10,294,710 for the last biennium, compared with \$6,684,110 during the 1940-42 period.

Particularly was the production of oysters encouraging. The yield of oysters during the two-year period was 752,268 bushels which brought an estimated return of \$752,268 to the fishermen. The production for 1943-44 was greater than for any other year in the history of the Department, with one exception.

Experiments and demonstrations of oyster growing have continued at the North River Station which was made possible by an appropriation made by the General Assembly of 1943. During this biennium, interest has picked up considerably in the private culture of oysters. An indication of the value of this type of project is the fact that quantities of cultivated oysters have sold at double the average price of those taken from natural beds.

Commerce and Industry: This Division has experience one of the most active periods of its existence during the past two years. Its efforts have been largely directed toward aiding in the war effort by helping to find facilities for the production of materials for the armed services.

A special committee on War Industrial Coordination was appointed by Governor Broughton immediately before the opening of the biennium for the primary purpose of assisting industry in converting to war production. The work of this committee was financed through appropriations to the Division of Commerce and Industry and its program was directed through the Division. Working with the War Production Board and other federal agencies, the Committee assisted numerous plants to obtain contracts, thus helping to avoid costly delays and speeding output urgently needed by the armed forces.

One of the outstanding services of the Division was in helping manufacturers find needed industrial space for establishing additional production facilities. Although the number of new war plants established in the State was not large, some of those that did locate in the State would, no doubt, had been placed elsewhere had not the services of the Division been used in their behalf. By working with the officials of industries in other States, the Division has helped in the establishment of several branch plants in North Carolina.

In the early days of the war, it was realized that North Carolina would not be able to participate in war production in the form of new manufacturing facilities to an equal extent with some of the other states. It was quite natural that the government give contracts to existing plants for most of the heavy equipment and materials where somewhat similar products had been manufactured previously rather than to seek out new technical staffs and new sources of labor.

Realizing this situation, the Division devoted its energies largely toward getting expansions of large companies already having war orders and toward promoting research to uncover new resources to provide raw materials for other industries.

Forestry: Some features of the program of the Division of Forestry have been emphasized and others have been curtailed by the war. Added stress has been placed on forest fire protection and timber management while State Park activities have been continued on a below-normal level.

Continued stress was placed by the Department on fire protection as the basis of a well-rounded and efficient forestry program. This feature of the program was substantially implemented during the biennium by emergency federal appropriations for forest fire control in designated critical defense areas. Federal funds amounting to \$109,000 were made available for this purpose in 1942-43; the amount dropped to about \$90,000 during the last fiscal year of the biennium; and further reduction will be made during the ensuing year. These amounts were in addition to regular federal allotments.

The Department takes pride, however, in pointing to the fact that the regular State program of forest fire control was extended to the largest number of counties (62) ever protected, with the total area of woodlands in the State system amounting to 12,475,329 acres at the close of the biennium.

Although material progress has been made within the past few years in the State's forest fire program, some 4,500,000 acres of woodlands in North Carolina still do not have organized protection, and the degree of protection given most of the territory now under protection is not sufficiently adequate for the most effective results. Without a sufficiently complete and thorough program of this nature, other forestry measures cannot attain a full measure of success.

Naturally, other measures, including in particular sound management practices, reforestation, and the wise use of all forest products are necessary for an adequate forestry program which will assure a continuous yield of timber.

Wartime demands for timber have been the greatest ever experienced in the history of the nation. Threats of a really serious shortage brought special action by the Federal Government in the form of the Timber Production War Project. The State cooperated actively with this agency in encouraging owners with mature timber to cut and market and in advising, wherever possible, concerning cutting methods.

Although State Park activities have been curtailed materially during the biennium, there have been numerous essential functions which have necessarily been continued for the protection of the large investments in these areas. During this period, the curtailed force has also been busy in planning developments which were deferred during the war. Extensive plans have been made for the completion of the park system as a source of relaxation and recreation to hundreds of thousands who will desire and need these facilities in the future. This program will provide substantial work reserve projects which can be taken up after the war by either the State or Federal government.

Game and Inland Fisheries: Although hunters, fishermen, and recreationists have not been able to indulge in their favorite sports to the average extent during the

past two years, it was manifestly not wise to relax game and fish protection at the risk of losing the effects of the efforts of many preceding years.

Financial limitations, as well as the inavailability of manpower, made it mandatory to curtail substantially research projects and even to suspend some during the current emergency.

Naturally the fact that fewer hunters and fishermen were able to participate in these sports resulted in the sale of fewer licenses and a reduction in the receipts which finance the game and inland fisheries program. Only as a result of curtailments in expenditures was it possible to keep expenditures in line with collections. A contingent appropriation of \$100,000 annually for the biennium by the General Assembly of 1943 was turned back into the General Fund. This appropriation carried the limitation that it could be used only for law enforcement after "all other projects of research, or any other operation not directly related to enforcement, shall be discontinued."

The activities of this Division have probably been affected to a greater extent by the war than others of the Department. It has been impractical to plan and execute the various normal activities under the handicap of decreasing and uncertain revenues. The inavailability of trained men has also been a limiting factor. When travel restrictions are released, ammunition becomes more abundant, and necessary manpower, both trained and untrained, are available, a progressive program will go forward.

While protection is the basic feature of a game program and should receive primary stress, education and research are important and will receive special attention as normal activities are resumed.

Mineral Resources: Demands for minerals in tremendous quantities and wide variety have placed the heaviest burden ever faced by the Division of Mineral Resources during the biennium, in addition to its regular duties. Additional tasks have been carried out by the Division with the desire to cooperate to the fullest extent in the war effort, as has been the case with the other Divisions of the Department.

As a result of these accelerated and enlarged activities, much fundamental work, which has already led to increased production and which should pave the way for new developments in the future, has been done.

Because of limitations of personnel and to assemble special information, it was necessary to supplement the facilities of the Division. Early in 1943, the nationally known engineering firm of H. A. Brassert and Company was employed by Governor J. Melville Broughton for a special examination and study of the iron, coal, and olivine resources of the State with particular reference to facilitating their development. The need of this survey grew out of the national steel shortage which was the subject of an investigation by a special committee from the National House of Representatives.

This survey, as indicated elsewhere in this report, led to a comprehensive program of core drilling by the U. S. Bureau of Mines upon the completion of which it is expected that the State will have a fairly complete inventory of the iron and coal resources of North Carolina. As a result of basic studies of olivine and experiment and pilot plant operation in the reduction of magnesium from this mineral, it is believed that there is a fair chance for a reduction plant in the State in the future.

The Division has worked in cooperation with the Tennessee Valley Authority, the U. S. Geological Survey, and the Bureau of Mines in field studies and investigations of several minerals which show promise of development in the future. The State's knowledge of its mineral resources has been greatly increased as a result of activities during the biennium.

State Advertising: While the State Advertising program has been carried on throughout the biennium, it has been altered extensively to fit into the war pattern. Emphasis was shifted from tourist and other features to industrial promotion to help in the unprecedented armament program.

With the exception of occasional advertisements to preserve the investments already made by the State over a period of years, tourist copy was virtually discontinued. The theme of the few tourist advertisements run after restrictions were placed on travel was to remind future vacationists that the same old attractions will be found in North Carolina after the emergency is over.

The volume of agricultural copy was reduced sharply and was altered to point toward increasing the production of food and other crops more particularly needed. A limited number of summer camp advertisements was also run.

In the main, the predominating industrial copy was directed toward helping to locate industries for war production and to call attention to unexploited resources which had possibilities of use in the armament program.

Special attention in the promotional work, other than direct advertising, has been paid to the servicemen training within the State. This was accomplished partly through pictorial folding postcards, a special pamphlet, camp and club murals, and the motion picture "Variety Vacationland."

Plans have already been made to shift emphasis back to travel promotion through direct advertising and other promotional efforts immediately upon relaxation of travel restrictions. Attention is also being given to the promotion of additional tourist facilities in areas where they appear to be inadequate to handle the volume of travel which is expected to develop in the postwar period. North Carolina should continue for some time to realize on investments made during past years in familiarizing the nation with her attractions. These results will be cumulative as the program continues.

Water Resources and Engineering: Since May 1942, this Division has been without the services of a Chief Engineer. W. H. Riley, acting Chief Engineer, has taken care of the duties of this office as well as those of his own as Assistant Engineer. In spite of a continuous search for an engineer to fill this position, these efforts have not been successful.

As a result of the lack of the services of a Chief Engineer and other conditions, it has been necessary to suspend activities in some phases of the program of the Division, but these will be continued when the organization is completed and facilities become available.

During the biennium, however, the most basic functions of the Division have been continued without interruption. These include, in particular, stream gaging. A total of 131 stations were in operation at the close of this report period. During the biennium, when the U. S. Geological Survey signified its desire to move its district office from Asheville, temporary space was found in the offices of the Department for District Engineer E. D. Burchard and part of his force, the remainder being left in Asheville.

Following an agreement with the U. S. Geological Survey, there was set up jointly by this agency and the Division a laboratory at N. C. State College for a systematic study of the chemical quality of the surface waters of North Carolina, with particular reference to their industrial use. The analyses made at the laboratory have already served an important purpose in the State's program to promote industrial development.

The acting Chief Engineer of the Division was named as the representative of the Department in conferences with representatives of other State agencies and the Tennessee Valley Authority for the purpose of considering means of appraising and studying stream sanitation and conservation problems.

OIL LEASES

In April 1944, a group of citizens of the State, mostly from Eastern North Carolina, approached the Department with regard to leasing lands in the Holly Shelter Area in Pender and Duplin County for exploration for oil.

After conferences with the State Board of Education which held title to the area and with the Attorney General, the Board of Conservation and Development agreed to lease certain areas. Both the Department and the State Board of Education entered into the lease agreement, since a reversionary clause in the deed from the latter Board provided that the lands could be used only for game conservation purposes. A standard form of lease which provides for a royalty of one-eighth in the event oil is found, was used. Any proceeds from the lease, under constitutional provision, will go to the public schools.

Chapter 385, Public Laws of 1937, vested authority to lease mineral rights on submerged lands belonging to the State in the Department of Conservation and Development. The Standard Oil Company of New Jersey, in May 1944, approached the Department for a lease on various river and sound bottoms. After negotiations extending over several weeks, the Board authorized leasing certain submerged areas along the coast in the northeastern part of the State to this company.

Subsequently, the Coastal Plains Company applied for a lease on other submerged areas, and it was granted. A considerable portion of the submerged lands in the central coastal section was held open to await developments.

Terms of the three leases are similar in most respects. In each case the lessors have committed themselves to a thorough exploration of oil possibilities and the drilling of wells. The return to the State, contingent upon the finding of oil, is similar in each lease. As a result of these explorations and drillings, it is thought that the likelihood of finding oil will be thoroughly tested. If results are negative, the question will be fairly positively settled and if fruitful, developments which mean much to the State will have been started.

RECOMMENDATIONS

Commercial Fisheries: Among the greatest undeveloped resources in the State are the commercial fisheries, and an enlarged program is needed for the realization of the full opportunities which this industry presents. The establishment of the oyster experiment and demonstration farm on North River in Carteret County is but the first move in this direction.

One of the first steps in a forward-looking commercial fishery program should be the addition of a biologist to the staff of the fisheries commissioner. Such a scientist should be equipped to carry out studies leading to the solution of many of the problems of supply of various types of commercial fish and shellfish and to supervise programs which might be worked out as a result of his research. An individual with these qualifications could serve with the fishermen in a capacity similar to a farm agent, advising on such matters as oyster culture. In this way he could help to bring into production many of the thousands of acres of suitable oyster bottoms and direct programs for the protection of other branches of the fisheries.

Public oyster beds should from time to time be rehabilitated by the planting of

seed and shells. Such a program might be at least partly financed through a revision of the tax on oysters and probably a supplement from other funds.

In general, it is realized that a program purely regulatory in nature is not sufficient for maintaining and developing the commercial fishery resources of the State.

Forestry: The forests of North Carolina constitute an indispensable resource, both as a source of local products and for raw materials for industry. To allow a large percentage of the area of the State to become unproductive or only partly so would be a short-sighted policy and finally result in a shortage in one of our most important natural resources.

In spite of outstanding progress in the forestry program of the State, several million acres of forest lands do not yet have organized protection from fire. It is recommended that further financial provisions be made to expand the forest fire protection program and to increase the effectiveness of these efforts.

Legislation requiring the leaving of a certain number of seed trees in the cutting of timber and also some reasonable cutting regulations to prevent waste is needed. A bill to accomplish these purposes was offered in the General Assembly of 1943 but was lost in the closing days of this legislative body. Reconsideration in the incoming General Assembly, particularly in view of the unusually heavy war demands on the forests, is deserved.

Terms of Board Members: As now constituted, the Board of Conservation and Development is subject to an entire change in membership each four years. Because of the broad scope of operations covered by the Department and the responsibilities of the Board in adopting regulations and passing on other policies, at least part of the membership should consist of men who have become familiar with the subjects covered and the background of the many problems which constantly arise.

The Board has recommended, and the Director joins in this recommendation, that the law creating the Board be amended to provide for staggered terms expiring at intervals of two or four years so that a majority of the membership will always be held over. This can be accomplished by providing for different terms for the first group appointed by the Governor.

Tryon's Palace Restoration: Through the liberality of Mrs. J. E. Latham, of Greensboro, provisions have been made for the restoration of Tryon's Palace at New Bern, contingent upon the acquisition of the site.

It is recommended that the General Assembly provide \$150,000 for this purpose, thus making possible the project. This project has been described by well qualified persons as a "Williamsburg" on a smaller scale. This project will not only be an outstanding advertising feature for the State but is a sound investment from the standpoint of bringing large revenues in the form of tourist dollars. Added receipts from gasoline taxes contributed by tourists who will be attracted to the restored palace will considerably more than amortize the investment which it is proposed that the State make.

Stream Pollution: As North Carolina becomes more thoroughly industrialized and as population increases, the problems of waste disposal grow in gravity.

It is essential to the welfare of the State that a program be inaugurated for the purpose of working out problems involved in the discharge of wastes in our streams. An approach has been made in this direction in the form of an agreement between various State agencies concerned and the TVA for the study of pollution. This program should be enlarged and equipped for a thorough study and to endeavor to obtain the cooperation of municipalities, industries, and all other agencies working on similar problems in other parts of the county.

APPROPRIATIONS DIVISIONS
STATEMENT OF RECEIPTS AND DISBURSEMENTS

Biennium 1942-1944

	1942-43	1943-44
I. ADMINISTRATION:		
<i>Disbursements:</i>		
Board Members, Attending Meetings.....	\$ 1,265.64	\$ 1,514.59
Director's Office:		
Salary, Director.....	6,000.00	6,000.00
Salaries, Staff.....	12,963.33	14,092.24
Supplies and Materials.....	301.26	239.29
Postage, Telephone, and Telegraph.....	585.57	698.40
Travel Expense.....	403.32	187.55
Printing and Binding.....	764.28	223.85
Repairs and Alterations.....	72.79	94.67
General Expense.....	190.34	140.95
Equipment.....	46.64	32.50
TOTAL.....	\$ 22,593.17	\$ 23,224.04
<i>Less Receipts:</i>		
Sale of Publications.....	36.65	12.94
Game and Fish—Attending Meetings.....	400.00	400.00
TOTAL RECEIPTS.....	\$ 436.65	\$ 412.94
APPROPRIATION.....	\$ 22,156.52	\$ 22,811.10
II. COMMERCE AND INDUSTRY AND ADVERTISING:		
COMMERCE AND INDUSTRY:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 12,584.17	\$ 12,875.19
Supplies and Materials.....	151.53	152.69
Postage, Telephone, and Telegraph.....	3,195.04	2,498.09
Travel Expense.....	8,350.35	6,493.69
Printing and Binding.....	304.94	183.06
General Expense.....	321.35	347.05
Equipment.....	38.14	43.29
Motor Vehicle Operation.....	404.66	845.93
Motor Vehicle Exchange.....	947.36	1,131.24
Repairs and Alterations.....	20.35	-----
Workmen's Compensation.....	—632.00	-----
TOTAL COMMERCE AND INDUSTRY.....	\$ 25,685.89	\$ 24,570.23
ADVERTISING:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 10,026.67	\$ 10,526.03
Supplies and Materials.....	1,715.42	1,313.93
Postage, Telephone, and Telegraph.....	1,968.43	1,824.78
Travel Expense.....	1,634.00	1,562.44
Printing and Binding.....	5,967.75	5,175.61
Repairs and Alterations.....	45.67	56.21
Direct Advertising.....	57,185.80	61,438.01
General Expense.....	233.76	852.75

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
II. COMMERCE AND INDUSTRY AND ADVERTISING—Continued:		
ADVERTISING—Continued:		
<i>Disbursements—Continued:</i>		
Equipment.....	\$ 388.83	\$ 567.85
Kitty Hawk Celebration.....		446.12
Motor Vehicle Exchange.....		1,131.24
TOTAL ADVERTISING.....	\$ 79,166.33	\$ 84,894.97
TOTAL COMMERCE AND INDUSTRY AND ADVERTISING.....	\$ 104,852.22	\$ 109,465.20
Less Receipts:		
Sale of Publications.....	151.50	172.44
APPROPRIATION.....	\$ 104,700.72	\$ 109,292.76
III. WATER RESOURCES:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 7,749.40	\$ 6,041.00
Supplies and Materials.....	357.93	194.05
Postage, Telephone and Telegraph.....	103.50	69.53
Travel Expense.....	1,094.73	464.99
Printing and Binding.....	21.47	20.51
Motor Vehicle Operation.....	379.53	334.56
Repairs and Alterations.....	1,321.29	52.40
Cooperation, U. S. Geological Survey.....	7,500.00	10,000.00
Cooperation, U. S. Geological Survey-Chemical.....		4,000.00
General Expense.....	16.50	25.50
Equipment.....	111.67	—129.35
TOTAL.....	\$ 18,656.02	\$ 21,073.19
Less Receipts:		
Private Cooperation.....	956.25	862.50
APPROPRIATION.....	\$ 17,699.77	\$ 20,210.69
IV. MINERAL RESOURCES:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 7,117.82	\$ 10,627.51
Supplies and Materials.....	196.80	267.60
Postage, Telephone and Telegraph.....	158.41	202.46
Travel Expense.....	723.21	772.09
Printing and Binding.....	401.52	16.64
Motor Vehicle Operation.....	435.94	727.82
Repairs and Alterations.....	21.20	5.60
General Expense.....	52.90	153.33
Equipment.....	1.75	43.50
Cooperation, U. S. Geological Survey—Ground Water Study.....	3,000.00	3,000.00
Cooperation, U. S. Geological Survey—Study of Minerals.....	3,025.09	3,000.00
Survey of Mineral Resources.....	20,000.00	12,500.00
Survey of Mineral Resources—Transferred to Succeeding Year.....	5,000.00	-----
Motor Vehicle Exchange.....	946.33	-----
TOTAL.....	\$ 41,080.97	\$ 31,316.55
Less Receipts:		
Transferred from Preceding Year—Survey.....		5,000.00
APPROPRIATION.....	\$ 41,080.97	\$ 26,316.55

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
V. FOREST FIRE PREVENTION:		
<i>Disbursements:</i>		
<i>Administration:</i>		
Salaries and Wages.....	\$ 9,627.50	\$ 11,729.48
Supplies and Materials.....	102.12	216.32
Postage, Telephone, and Telegraph.....	593.45	700.41
Travel Expense.....	540.70	795.74
Printing and Binding.....	215.55	621.65
Motor Vehicle Operation.....	576.77	637.92
Repairs and Alterations.....	46.24	75.60
Equipment.....	42.44	780.97
Motor Vehicle Exchange.....	2,792.45	3,964.96
Workmen's Compensation.....	442.99	506.74
Employees' War Bonus.....	413.18	1,052.00
TOTAL.....	\$ 15,393.39	\$ 21,081.79
<i>Cooperative Projects:</i>		
Salaries—Wardens and Rangers.....	\$ 77,264.69	\$ 83,300.54
Wages—Towermen and Firemen.....	34,911.95	43,205.63
Expenses—Fire Wardens.....	4,341.94	6,449.80
Fire Control Equipment.....	8,272.34	18,171.99
Repairs and Alterations.....	7,016.85	8,717.73
Lookout Towers.....	335.56	5,920.56
Telephone Lines.....	1,544.52	1,678.66
Buildings.....	1,497.22	2,016.10
Roads and Fire Lines.....	1,473.09	1,673.37
Fire Suppression.....	8,242.63	10,169.73
Employees' War Bonus.....	5,336.97	11,298.88
TOTAL.....	\$ 150,237.76	\$ 192,602.99
<i>District No. 1—Asheville:</i>		
Salaries and Wages.....	\$ 4,788.08	\$ 5,610.00
Postage, Telephone, and Telegraph.....	145.88	163.83
Travel Expense.....	274.36	228.40
Motor Vehicle Operation.....	963.42	944.74
Rents.....	120.00	120.00
Employees' War Bonus.....	288.00	576.00
TOTAL.....	\$ 6,579.74	\$ 7,042.97
<i>District No. 2—Lenoir:</i>		
Salaries and Wages.....	\$ 5,045.00	\$ 5,115.00
Postage, Telephone, and Telegraph.....	136.75	178.54
Travel Expense.....	300.94	355.37
Motor Vehicle Operation.....	1,073.00	1,099.09
Employees' War Bonus.....	282.00	570.00
Rents.....	23.50	-----
TOTAL.....	\$ 6,861.19	\$ 7,318.00

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
V. FOREST FIRE PREVENTION—Continued:		
<i>Disbursements—Continued:</i>		
<i>District No. 3—Rockingham:</i>		
Salaries and Wages.....	\$ 3,175.33	\$ 4,443.60
Postage, Telephone, and Telegraph.....	156.36	153.38
Travel Expense.....	229.03	333.43
Motor Vehicle Operation.....	566.44	745.82
Employees' War Bonus.....	231.60	525.68
TOTAL.....	\$ 4,358.76	\$ 6,201.91
<i>District No. 4—New Bern:</i>		
Salaries and Wages.....	\$ 4,160.17	\$ 4,768.30
Postage, Telephone, and Telegraph.....	155.83	141.93
Travel Expense.....	248.95	342.23
Motor Vehicle Operation.....	699.68	715.66
Lights.....	4.50	3.94
Employees' War Bonus.....	261.00	557.00
TOTAL.....	\$ 5,530.13	\$ 6,529.06
<i>District No. 5—Rocky Mount:</i>		
Salaries and Wages.....	\$ 4,548.17	\$ 3,675.00
Postage, Telephone, and Telegraph.....	261.50	215.21
Travel Expense.....	293.38	332.53
Motor Vehicle Operation.....	725.93	763.12
Lights.....	18.00	19.45
Employees' War Bonus.....	288.00	459.00
TOTAL.....	\$ 6,134.98	\$ 5,464.31
<i>District No. 6—Fayetteville:</i>		
Salaries and Wages.....	\$ 6,813.00	\$ 6,775.00
Postage, Telephone, and Telegraph.....	230.61	196.55
Travel Expense.....	762.53	711.32
Motor Vehicle Operation.....	1,120.00	618.07
Lights.....	12.00	12.00
Employees' War Bonus.....	384.00	733.00
TOTAL.....	\$ 9,322.14	\$ 9,045.94
<i>District No. 7—Elizabeth City:</i>		
Salaries and Wages.....	\$	\$ 3,103.96
Postage, Telephone and Telegraph.....	.....	121.54
Travel Expense.....	.....	204.90
Motor Vehicle Operation.....	.....	408.33
Rents.....	.....	283.00
Employees' War Bonus.....	.....	362.62
TOTAL.....	\$	\$ 4,484.35
TOTAL DISBURSEMENTS.....	\$ 204,418.09	\$ 259,771.32
<i>Less Receipts:</i>		
Federal Cooperation.....	\$ 77,150.75	\$ 95,577.00
County Cooperation.....	61,752.64	71,075.48
Private Cooperation.....	9,677.59	11,388.64
War Department Payment—Sandhills Area.....	.....	6,464.99
TOTAL RECEIPTS.....	\$ 148,580.98	\$ 184,446.11
APPROPRIATION FOREST FIRE PREVENTION.....	\$ 55,837.11	\$ 75,325.21

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
V-A. FOREST FIRE PREVENTION:		
Supplemental Budget:		
Critical Defense Areas:		
Special Emergency Fire Control:		
Administration:		
Travel Expense.....		\$ 40.00
Printing and Binding.....		167.22
Motor Vehicle Operation.....		25.21
TOTAL.....		\$ 232.43
Cooperative Projects:		
Wages—Towermen and Firemen.....		\$ 545.00
Expenses—Fire Wardens.....		215.00
Fire Control Equipment.....		17,952.60
Equipment—Repairs.....		23.50
TOTAL.....		\$ 18,736.10
Elizabeth City Office:		
Postage, Telephone, and Telegraph.....		\$ 9.60
Travel Expense.....		29.64
Motor Vehicle Operation.....		50.62
TOTAL.....		\$ 89.86
TOTAL SPECIAL EMERGENCY.....		\$ 19,058.39
Emergency Fire Control:		
Administration:		
Salaries—Staff.....	\$ 1,080.00	\$ 2,556.73
Supplies and Materials.....	50.12	142.15
Travel Expense.....	357.43	563.12
Printing and Binding.....	187.75	128.94
Motor Vehicle Operation.....	309.78	376.74
Equipment.....	91.65	23.10
Employees' War Bonus.....	108.00	216.00
Motor Vehicle Exchange.....	1,037.40	
TOTAL.....	\$ 3,222.13	\$ 4,006.78
Cooperative Projects:		
Wages—Towermen and Firemen.....	\$ 43,725.37	\$ 56,184.49
Expenses—Fire Wardens.....	1,164.96	1,429.98
Fire Control Equipment.....	10,334.15	3,368.43
Equipment Repairs.....	3,971.44	3,777.60
Lookout Towers.....	64.73	3,714.46
Buildings.....		59.28
Roads and Fire Lines.....		7.75
Fire Suppression.....	211.81	542.96
TOTAL.....	\$ 59,472.46	\$ 69,084.95
Elizabeth City and New Bern Offices:		
Salaries—Staff.....	\$ 2,489.97	
Postage, Telephone, and Telegraph.....	124.09	223.35
Motor Vehicle Operation.....	598.81	383.25
Rents.....	160.00	400.00

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
V-A. FOREST FIRE PREVENTION—Continued:		
Special Emergency Fire Control—Continued:		
Elizabeth City and New Bern Offices—Continued:		
Lights.....	\$.....	\$ 9.30
Travel Expense.....	252.96	-----
Employees' War Bonus.....	186.00	-----
TOTAL.....	\$ 3,811.83	\$ 1,015.90
TOTAL EMERGENCY FIRE CONTROL.....	\$ 66,506.42	\$ 74,107.63
TOTAL CRITICAL DEFENSE AREAS.....	\$ 66,506.42	\$ 93,166.02
Aircraft Warning Service:		
Administration:		
Supplies and Materials.....	\$ 2.00	\$-----
Postage, Telephone, and Telegraph.....	32.82	15.00
Travel Expense.....	19.66	69.43
Motor Vehicle Operation.....	83.80	-----
TOTAL.....	\$ 138.28	\$ 84.43
Field Projects:		
Wages—A. W. Service.....	\$ 6,591.77	\$ 2,519.78
Expenses—Fire Wardens and Observers.....	639.22	142.33
Equipment.....	31.99	27.42
Equipment—Repairs.....	100.62	-----
TOTAL.....	\$ 7,363.60	\$ 2,689.53
TOTAL AIRCRAFT WARNING SERVICE.....	\$ 7,501.88	\$ 2,773.96
Cooperative Projects:		
Wages—Operator and Helper.....	-----	\$ 204.00
Expenses—Operator and Helper.....	-----	11.05
Equipment—Purchase.....	-----	2.00
Equipment—Repairs.....	-----	96.01
Motor Vehicle Operation.....	-----	51.20
TOTAL.....	-----	\$ 364.26
TOTAL DISBURSEMENTS—SUPPLEMENT.....	\$ 74,008.30	\$ 96,304.24
Less Receipts:		
Federal Cooperation—Special Emergency.....	\$-----	\$ 22,758.39
Federal Cooperation—Emergency Fire Control.....	62,806.42	74,107.63
Federal Cooperation Aircraft Warning Service.....	7,501.88	2,773.96
Private Cooperation—Fire Lanes.....	-----	509.10
TOTAL RECEIPTS.....	\$ 70,308.30	\$ 100,149.08
APPROPRIATION FOREST FIRE SUPPLEMENT.....	\$ 3,700.00	\$ —3,844.84
VI. GENERAL FORESTRY:		
Disbursements:		
Salaries and Wages.....	\$ 5,033.00	\$ 5,101.37
Supplies and Materials.....	59.72	29.02
Postage, Telephone, and Telegraph.....	121.73	159.57
Travel Expense.....	99.64	133.42
Printing and Binding.....	16.27	846.47
General Expense.....	20.00	41.20
Equipment.....	2.25	17.00
TOTAL FROM APPROPRIATION.....	\$ 5,352.61	\$ 6,328.05

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
VII. STATE FORESTS AND PARKS:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 15,461.26	\$ 15,706.68
Labor.....	3,239.95	4,957.92
Supplies and Materials.....	1,169.53	1,125.87
Postage, Telephone.....	274.69	359.97
Travel Expense.....	487.61	597.14
Printing and Binding.....	83.66	107.91
Motor Vehicle Operation.....	3,020.31	2,943.11
Lights and Power.....	305.00	444.71
Repairs and Alterations.....	1,087.24	1,232.28
General Expense.....	490.59	397.86
Insurance and Bonding.....	1,499.87	1,522.94
Equipment.....	870.05	436.17
Purchase of land.....		6,927.39
Purchase of Land—Transferred to Succeeding Year.....	5,423.00	
Motor Vehicle Exchange.....	450.00	
Construction Roads and Trails.....	299.95	
Buildings and Other Structures.....	610.59	
Water Sewer Systems.....	57.56	
Stores for Resale.....	1,205.43	
Construction of Cabins, Morrow Mountain Park.....	258.65	
TOTAL.....	\$ 36,349.99	\$ 36,764.95
<i>Less Receipts:</i>		
Permits State Lakes.....	325.11	215.42
Park Concessions.....	4,179.39	3,143.52
Bladen Lakes State Forest.....		500.47
Transferred from Preceding Year (Land).....		5,423.00
War Department Payment—Sandhills Area.....		2,382.07
TOTAL RECEIPTS.....	\$ 4,504.50	\$ 11,669.48
APPROPRIATION.....	\$ 31,845.49	\$ 25,095.47
VIII. FOREST MANAGEMENT AND PLANTING:		
<i>Disbursements:</i>		
Salaries and Wages.....	\$ 8,610.00	\$ 9,170.07
Labor.....	6,239.47	5,847.01
Supplies and Materials.....	1,213.39	2,038.88
Postage, Telephone, and Telegraph.....	665.74	739.06
Travel Expense.....	666.99	289.57
Printing and Binding.....	96.37	42.35
Motor Vehicle Operation.....	4,981.35	4,612.85
Lights and Power.....	275.50	334.10
Repairs and Alterations.....	98.16	187.25
General Expense.....	50.32	33.79
Insurance and Bonding.....	42.00	199.50
Equipment.....	1,507.03	2,106.18

APPROPRIATIONS DIVISIONS—Continued

	1942-43	1943-44
VIII. FOREST MANAGEMENT AND PLANTING—Continued:		
Disbursements—Continued:		
Marketing Timber—Bladen Lakes	\$ 10,477.78	\$ 13,902.81
Additions—Mt. Nursery		2,207.50
Additions Mountain Nursery—Transferred to Succeeding Year	1,025.00	
Employees' War Bonus	474.00	1,029.74
TOTAL	\$ 36,423.10	\$ 42,740.66
Less Receipts:		
Federal Cooperation	1,965.00	1,800.00
Sale of Seedlings	2,542.35	828.58
Bladen Lakes—Land Use Area	19,791.30	32,763.11
Transferred from Preceding Year (Land)		1,025.00
TOTAL RECEIPTS	\$ 24,298.65	\$ 36,416.69
APPROPRIATION	\$ 12,124.45	\$ 6,323.97
IX. MISCELLANEOUS ACCOUNTS:		
Disbursements:		
Employees' War Bonus	\$ 2,793.06	\$ 6,068.74
Forest Fire, Critical Defense Areas and Management	8,252.75	17,379.92
TOTAL	\$ 2,793.06	\$ 6,068.74
Less Receipts:		
Receipts—Bladen County Land		5,882.50
APPROPRIATION	\$ 2,793.06	\$ 186.24
TOTAL DISBURSEMENTS	\$ 546,527.53	\$ 633,056.94
LESS TOTAL RECEIPTS	249,236.83	345,011.74
TOTAL DISBURSEMENTS FROM APPROPRIATION	\$ 297,290.70	\$ 288,045.20

DIVISION OF GAME AND INLAND FISHERIES

STATEMENT OF RECEIPTS AND DISBURSEMENTS

Biennium 1942-1944

	1942-43	1943-44
INLAND FISHERIES:		
<i>Disbursements:</i>		
<i>Administration:</i>		
Salary—Supervisor.....	\$ 3,000.00	\$ 2,880.00
Salaries—Staff.....	2,012.00	2,282.76
Salaries—Wardens.....	30,000.00	25,000.00
Supplies and Materials.....	160.82	444.15
Postage, Telephone, and Telegraph.....	119.88	147.23
Travel Expense.....	942.35	641.01
Printing and Binding.....	855.80	829.38
Motor Vehicle Operation.....	409.80	475.90
General Expense.....		28.00
Rents.....	65.00	50.00
Legal Notices.....	5.00	47.80
Insurance and Bonding.....	300.00	63.99
Equipment.....	88.55	16.40
TOTAL.....	\$ 37,959.20	\$ 32,906.62
<i>Morrison Hatchery:</i>		
Salaries and Wages.....	\$ 3,229.75	\$ 3,245.75
Supplies and Materials.....	3,843.98	2,849.91
Postage, Telephone, and Telegraph.....	60.30	72.46
Travel Expense.....	38.40	26.25
Motor Vehicle Operation.....	259.44	490.99
Lights and Power.....	79.24	94.27
Repairs and Alterations.....	2.32	411.00
Equipment.....	71.71	50.11
Buildings and Improvements.....	150.26	189.79
TOTAL.....	\$ 7,735.40	\$ 7,430.53
<i>Murphy Hatchery:</i>		
Salaries and Wages.....	\$ 2,363.26	\$ 2,606.18
Supplies and Materials.....	2,424.40	2,983.83
Postage, Telephone, and Telegraph.....	71.26	89.37
Travel Expense.....	44.60	63.56
Motor Vehicle Operation.....	731.44	769.25
Lights and Power.....	27.35	31.02
Repairs and Alterations.....	494.30	154.78
Equipment.....	87.24	6.85
Buildings and Improvements.....	955.94	57.38
TOTAL.....	\$ 7,199.79	\$ 6,762.22
<i>Stedman Hatchery:</i>		
Salaries and Wages.....	\$ 2,394.65	\$ 2,799.75
Supplies and Materials.....	817.47	1,338.42
Postage, Telephone, and Telegraph.....	107.66	97.41
Travel Expense.....	16.90	56.50
Motor Vehicle Operation.....	675.79	699.86

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
INLAND FISHERIES—Continued:		
<i>Disbursements—Continued:</i>		
<i>Stedman Hatchery—Continued:</i>		
Lights and Power.....	\$ 830.45	\$ 589.97
Repairs and Alterations.....	184.05	413.44
Hatchery Equipment.....	2.34	—175.79
Buildings and Improvements.....		60.99
TOTAL.....	\$ 5,029.31	\$ 5,880.55
<i>Rearing Gap Hatchery:</i>		
Salaries and Wages.....	\$ 2,463.60	\$ 2,048.00
Supplies and Materials.....	2,483.80	2,058.33
Postage, Telephone, and Telegraph.....	50.21	59.09
Travel Expense.....	25.00	6.00
Motor Vehicle Operation.....	412.92	250.59
Lights and Power.....	146.35	107.36
Repairs and Alterations.....	131.00	230.63
Equipment.....	16.45	13.29
Buildings and Improvements.....	75.19	200.00
TOTAL.....	\$ 5,804.52	\$ 4,973.29
<i>Boone Hatchery:</i>		
Salaries and Wages.....	\$ 858.00	\$ 65.00
Supplies and Materials.....	1,264.26	200.19
Postage, Telephone, and Telegraph.....	3.24	3.00
Motor Vehicle Operation.....	132.80	28.92
Lights and Power.....	114.95	10.57
Repairs and Alterations.....	22.15	8.00
Equipment.....	15.74	
TOTAL.....	\$ 2,411.14	\$ 315.68
<i>Marmon Hatchery:</i>		
Salaries and Wages.....		\$ 1,829.40
Supplies and Materials.....		1,349.10
Postage, Telephone, and Telegraph.....		36.73
Travel Expense.....		20.67
Motor Vehicle Operation.....		316.01
Lights and Power.....		65.82
Repairs and Alterations.....		866.76
Equipment.....		24.64
TOTAL.....		\$ 4,509.13
<i>Lake Mattamuskeet:</i>		
Salaries and Wages.....	\$ 3,150.00	\$ 3,300.00
Supplies and Materials.....	30.05	2.40
Postage, Telephone, and Telegraph.....	93.72	75.98
Motor Vehicle Operation.....	380.26	185.03
Lights and Power.....	41.05	40.50
Rents.....	120.00	120.00
TOTAL.....	\$ 3,815.08	\$ 3,723.91

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
INLAND FISHERIES—Continued:		
<i>Disbursements—Continued:</i>		
<i>Miscellaneous Accounts:</i>		
Contribution Retirement System.....	\$ 1,554.30	\$ 1,382.45
Employees' War Bonus.....	3,185.66	5,639.33
TOTAL.....	\$ 4,739.96	\$ 7,021.78
TOTAL DISBURSEMENTS.....	\$ 74,694.40	\$ 73,523.71
Less Receipts		
Sale of Angler's Licenses.....	\$ *72,632.34	\$ *80,937.49
Transferred from Preceding Year.....	30,806.32	29,782.72
Miscellaneous Receipts.....	1,038.46	16.70
TOTAL RECEIPTS.....	\$ 104,477.12	\$ 110,736.91
CREDIT BALANCE FORWARD.....	\$ 29,782.72	\$ 37,213.20
GAME:		
<i>Disbursements:</i>		
<i>Administration and Enforcements:</i>		
Salary—Commissioner.....	\$ 4,800.00	\$ 4,983.26
Salary and Wages—Staff.....	129,240.71	130,833.12
Supplies and Materials.....	330.37	228.15
Postage, Telephone, and Telegraph.....	2,531.77	1,868.87
Travel Expense.....	15,456.37	15,101.32
Printing and Binding.....	2,379.30	2,676.61
Motor Vehicle Operation.....	1,893.02	2,365.85
Repairs and Alterations.....	65.39	64.38
General Expense.....	499.37	435.00
Legal Costs.....	92.38	70.62
Subscriptions and Dues.....	59.90	73.75
Insurance and Bonding.....	1,634.24	1,213.85
Equipment.....	—744.75	47.69
TOTAL.....	\$ 158,238.07	\$ 159,962.47
<i>Game Farms and Refuges:</i>		
<i>Game Farm—Fayetteville:</i>		
Salaries and Wages.....	\$ 2,015.27	\$ 2,804.12
Supplies and Materials.....	912.69	312.00
Postage, Telephone, and Telegraph.....	29.56	4.50
Motor Vehicle Operation.....	360.68	179.80
Lights and Power.....	354.54	186.02
Repairs and Alterations.....	4.25	783.04
Equipment.....		7.60
Travel Expense.....	11.80	
TOTAL.....	\$ 3,688.73	\$ 4,277.08
<i>Game Farm—Pine Forest:</i>		
Salaries and Wages.....	\$ 3,367.61	
Supplies and Materials.....	697.63	
Postage, Telephone, and Telegraph.....	35.37	
Travel Expense.....	2.17	
Motor Vehicle Operation.....	239.07	
Lights and Power.....	144.25	
Repairs and Alterations.....	9.18	
TOTAL.....	\$ 4,495.33	

* Deposits during fiscal year.

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
GAME—Continued:		
<i>Disbursements—Continued:</i>		
<i>Game Farms and Refuges—Continued:</i>		
<i>Mount Mitchell Headquarters Project:</i>		
Supplies and Materials.....	\$ 636.09	\$ 358.93
Motor Vehicle Operation.....	39.80	57.40
Repairs and Alterations.....	10.00	341.99
Equipment.....	—75.00	
TOTAL.....	\$ 610.89	\$ 758.32
<i>Western Refuges:</i>		
Salaries and Wages.....	\$ 20,908.75	\$ 22,717.44
Supplies and Materials.....	69.54	77.31
Postage, Telephone, and Telegraph.....	232.25	290.01
Travel Expense.....	303.10	480.87
Printing and Binding.....	20.09	56.79
Motor Vehicle Operation.....	1,146.52	1,688.86
Equipment.....	12.00	
TOTAL.....	\$ 22,692.25	\$ 25,311.28
<i>Deer Survey and Educational Program:</i>		
Salaries and Wages.....	\$ 2,712.75	\$ 2,407.00
Supplies and Materials.....	90.61	134.65
Postage, Telephone, and Telegraph.....	335.57	310.27
Travel Expenses.....	287.05	345.74
Printing and Binding.....	836.61	652.49
Motor Vehicle Operation.....	439.02	359.44
TOTAL.....	\$ 4,701.61	\$ 4,209.59
<i>Holly Shelter and Angola Project:</i>		
Salaries and Wages.....		\$ 1,504.60
Supplies and Materials.....		68.22
Postage, Telephone, and Telegraph.....		35.92
Travel Expenses.....		5.90
Motor Vehicle Operation.....		714.22
Rental of Dogs.....		345.00
Additions and Betterments.....		280.00
TOTAL.....		\$ 2,953.86
<i>Pitman-Robertson Projects:</i>		
<i>Coordinating Projects:</i>		
Salaries and Wages.....	\$ 4,690.00	\$ 4,644.11
Supplies and Materials.....	55.38	46.50
Postage, Telephone, and Telegraph.....	52.53	22.57
Travel Expense.....	271.85	337.05
Motor Vehicle Operation.....	373.97	345.19
Employees' War Bonus.....	222.00	434.32
Equipment.....	5.00	
TOTAL.....	\$ 5,670.73	\$ 5,829.74

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
<i>GAME—Continued:</i>		
<i>Disbursements—Continued:</i>		
<i>Pittman-Robertson Projects—Continued:</i>		
<i>Development of Farm Game Demonstration Units:</i>		
Salaries and Wages.....	\$ 3,991.39	\$ 2,472.26
Supplies and Materials.....	811.59	174.74
Postage, Telephone, and Telegraph.....	39.96	22.53
Travel Expenses.....	142.65	105.91
Motor Vehicle Operation.....	413.36	347.31
Employees' War Bonus.....	192.00	192.00
TOTAL.....	\$ 5,590.95	\$ 3,314.75
<i>Research in Farm Game Management:</i>		
Salaries and Wages.....	\$ 2,487.83	\$ 322.07
Supplies and Materials.....	55.68	-----
Postage, Telephone, and Telegraph.....	6.30	-----
Travel Expenses.....	214.93	-----
Motor Vehicle Operation.....	351.24	-----
Rents.....	18.98	-----
Employees' War Bonus.....	40.65	-----
TOTAL.....	\$ 3,175.61	\$ 322.07
<i>SCS District—Cooperative Farm Game Project:</i>		
Salaries and Wages.....	-----	\$ 380.00
Postage, Telephone, and Telegraph.....	-----	5.80
Travel Expenses.....	-----	134.17
Motor Vehicle Operation.....	-----	113.74
Employees' War Bonus.....	-----	36.00
TOTAL.....	-----	\$ 669.71
<i>Fur Resources Investigation:</i>		
Salaries and Wages.....	\$ 2,308.80	-----
Supplies and Materials.....	37.46	-----
Postage, Telephone, and Telegraph.....	12.50	-----
Travel Expense.....	38.23	-----
Motor Vehicle Operation.....	208.43	-----
Rents.....	65.00	-----
Employees' War Bonus.....	60.80	-----
TOTAL.....	\$ 2,731.22	-----
<i>Water Impoundment Program:</i>		
Salaries and Wages.....	\$ 2,363.90	-----
Supplies and Materials.....	185.56	-----
Postage, Telephone, and Telegraph.....	8.01	-----
Motor Vehicle Operation.....	1,157.10	-----
Lights and Power.....	9.00	-----
TOTAL.....	\$ 3,723.57	-----

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
<i>GAME—Continued:</i>		
<i>Disbursements—Continued:</i>		
<i>Pittman-Robertson Projects—Continued:</i>		
<i>Holly Shelter Refuge Development:</i>		
Salaries and Wages.....	\$ 4,937.70	-----
Supplies and Materials.....	290.07	-----
Postage, Telephone, and Telegraph.....	65.09	-----
Travel Expense.....	9.69	-----
Motor Vehicle Operation.....	1,067.86	-----
Employees' War Bonus.....	170.00	-----
TOTAL.....	\$ 6,540.41	-----
<i>Study of Deer Management at Holly Shelter:</i>		
Salaries and Wages.....		\$ 17.60
Postage, Telephone, and Telegraph.....		1.55
Additions and Betterments.....		645.59
TOTAL.....		\$ 664.74
<i>Goose Creek Land Purchase:</i>		
Salaries and Wages.....		\$ 882.00
Supplies and Materials.....		38.45
Travel Expense.....		85.35
Motor Vehicle Operation.....		65.56
Employees' War Bonus.....		36.00
TOTAL.....		\$ 1,107.36
<i>Survey of Ungranted Land:</i>		
Salaries and Wages.....		\$ 380.00
Supplies and Materials.....		10.75
Travel Expense.....		68.65
Motor Vehicle Operation.....		84.81
Employees' War Bonus.....		36.00
TOTAL.....		\$ 580.21
<i>Uwharrie Deer Restoration:</i>		
Salaries and Wages.....		\$ 300.00
Postage, Telephone, and Telegraph.....		2.45
Employees' War Bonus.....		30.00
TOTAL.....		\$ 332.45
TOTAL PITTMAN-ROBERTSON PROJECTS.....	\$ 27,432.49	\$ 12,821.03
<i>Sandhills Refuge—Hoffman:</i>		
Salaries and Wages.....	\$ 3,684.15	-----
Supplies and Materials.....	19.40	-----
Motor Vehicle Operation.....	356.09	-----
Lights and Power.....	727.91	-----
Repairs and Alterations.....	92.70	-----
TOTAL.....	\$ 4,880.25	-----

DIVISION OF GAME AND INLAND FISHERIES—Continued

	1942-43	1943-44
GAME—Continued:		
Disbursements—Continued:		
Holly Shelter Refuge:		
Salaries and Wages.....	\$ 490.40	
Supplies and Materials.....	• 26.10	
Equipment.....	51.95	
TOTAL.....	\$ 568.45	
Miscellaneous Accounts:		
Motor Boats Operation.....	\$ 815.82	\$ 658.50
Workmen's Compensation.....	607.12	53.55
Contribution Retirement System.....	5,051.35	4,978.89
Employees' War Bonus.....	10,438.13	21,117.09
(Pittman-Robertson Projects).....	685.45	764.32
Lights and Power—Sandhills.....		312.18
TOTAL.....	\$ 16,912.42	\$ 27,120.21
TOTAL DISBURSEMENTS.....	\$ 244,220.49	\$ 237,413.84
Less Receipts:		
Sale of Hunting Licenses.....	\$ *246,591.30	\$ *190,222.75
Transferred from Preceding Year.....	60,827.14	94,813.58
Cooperation Federal Government.....	23,180.26	10,289.14
Receipts—Holly Shelter.....	1,314.79	944.48
Receipts—Sandhills Refuge.....	4,910.58	
Miscellaneous Receipts.....		26,728.66
Rental Pittman-Robertson Equipment.....	900.00	750.00
Sale Pittman-Robertson Equipment.....	1,310.00	
TOTAL RECEIPTS.....	\$ 339,034.07	\$ 323,748.61
CREDIT BALANCE FORWARD.....	\$ 94,813.58	\$ 86,334.77
TOTAL DISBURSEMENTS.....	\$ 318,914.89	\$ 310,937.55
LESS TOTAL RECEIPTS.....	\$ 443,511.19	\$ 434,485.52
TOTAL CREDIT BALANCE FORWARD.....	\$ 124,596.30	\$ 123,547.97

* Deposits during Fiscal Year.

DIVISION OF COMMERCIAL FISHERIES

CAPT. JOHN A. NELSON, *Commissioner*

N. R. WEBB, *Principal Account-Clerk* MARY E. WILLIS, *Senior Stenographer-Clerk*

N. McKEITHEN CALDWELL, *District Sanitarian*

D. M. DAVIS, *Assistant Commissioner*

THOS. A. BASNIGHT, *Assistant Commissioner*

INTRODUCTION

The State of North Carolina takes seriously its obligation to its citizens to protect its natural resources. To this end an agency was established some years ago that would have supervision over the activities of the commercial fisheries and pass rules and regulations which, with the acts of the Legislature, purposed to safeguard this great industry against waste and depletion. The Division of Commerical Fisheries, Department of Conservation and Development, has always sought the cooperation of the fishermen and operators in this conservation program that future generations may participate in its blessings. Wise supervision seeks only to pass on to others the real and potential wealth under its control. This has been and will continue to be the primary aim of this Division.

FOOD FISH

The quantity of edible fish produced this period exceeds that of the previous period by more than 15 per cent. This has been done in spite of the many handicaps under which the activities of this industry had to work. The Government has set out certain bounds which have restricted the privilege enjoyed by the fishermen heretofore, and it has deprived them of many of their choicest fishing grounds. This, of course, was recognized to be a necessity and, therefore, the fishermen made the best of it they could. This Department and the fishermen have tried to cooperate with the Government because they knew the conditions imposed were compelled by the exigencies of war. Also, the industry has been crippled no little by the fact that many of the fishermen, as well as their boats, were in the Government service. However, in spite of these handicaps, 91,475,000 pounds of food fish were marketed at a price of \$6,434,800 during this period as against a catch last biennium of 86,182,000 pounds which brought \$3,405,000. All in all, the result of this phase of the industry has been most gratifying.

SHRIMP

The thing that will surprise the casual reader most about this activity is the great increase in the price of produce over that of other years. This in not only the case with the shrimp but with every product of the industry. It is not so much the increase in production of shrimp that surprises as it is the price that the shrimp brought the fishermen. During this report period, 5,900,000 pounds of shrimp were marketed at the price of \$590,000 as against a production of 4,147,158 pounds in the previous period which brough \$174,180. So it is seen that the percentage of increase of the price of shrimp over the production was more than double. As in practically all activities, fewer men were engaged in shrimping this period than previously.

MENHADEN

Menhaden fishing was affected more by the war situation than any other commercial fishing activity. Boats were not allowed to fish at all between Hatteras and the Virginia line where for the past several years between \$4,000 and \$5,000 has been collected annually from non-resident boats permitted to fish there under the law. Certain sections between Hatteras and Cape Lookout were prohibited to menhaden fishing which has further crippled this activity. As a result of the several restrictions imposed upon menhaden fishermen because of the war conditions, about 25 per cent fewer fish were caught this period than during the previous period but the prices for the fish and their by-products were better than formerly. For this reason the industry was not as greatly affected by the restrictions as it would have been otherwise. The State produced this period 369,490,000 menhaden valued at \$2,746,000, and marketed 669,000 gallons of oil and 25,863 tons of scrap. The previous biennium 466,788,000 menhaden, valued at \$2,333,940, were caught and 2,675,000 gallons of oil and 32,690 tons of scrap were manufactured. The nine menhaden plants in the State, eight of which are in Carteret County and one in Brunswick, represent an investment of some \$1,480,000, the boats \$1,500,000 and nets \$150,000.

OYSTERS

The production of oysters from public grounds was greater the last year of this period than for any other year in the history of this Department, except for the season 1929-30. If the production the first year had been as great the second year the production for this biennium would have made that of the previous biennium look small by comparison. As it was, there were produced last year 752,268 bushels of oysters which sold for \$752,268. These oysters sold at an average of \$1.00 per bushel. This is indeed an unusual price for oysters; in fact, they probably have never before brought this price for two seasons in succession. There has been a greater interest shown during the last two years in the cultivation of oysters than for any like period we have known. Larger quantities of fine quality oysters have been marketed at prices ranging up to \$2.00 per bushel, and at no time has the supply exceeded the demand.

CLAMS

Probably the biggest surprise of the biennium has been the falling off in the production of clams. The production has not been limited because of the scarcity of clams but lack of demand. The largest canning company in America discontinued buying clams in this State about two years ago because of the opening up of a new supply of clams from the New Jersey coast. The difference in price and expense of getting clams to their plant was the controlling factors in changing their market; and too, one cannery plant in this State that bought large quantities of clams during the last biennium saw fit to cancel its contract with the Government and has canned only enough clams to supply its domestic trade. Mainly because of these two reasons, the production of clams fell off 62 per cent. The State produced 75,431 bushels of clams this biennium as against 196,636 bushels for the previous period.

ESCALLOPS

This activity has been for all practical purposes destroyed because of the killing out of eel grass a number of years ago. This grass shows very few encouraging signs of returning, but until it does we cannot hope for this activity to come into its own

as it flourished some 15 years or more ago. Total production of escallops for this biennium was only 2,000 gallons which sold for \$4,000. In this connection, however close or remote the relation to eel grass may be, a quantity of *Gracilaria Confervoides*, a variety of alga or seaweed has been gathered and sold this biennium by the watermen at 25c per pound dry. Upward of 20 commercial uses so far have been found for this seaweed and it is hoped that the laboratory tests or experiments it will be proved of real commercial value and thus a new activity be provided for our watermen.

CRABS

There has been a marked decrease in the production of soft crabs during this period but an increase of ten per cent in the production of hard crabs. The activity of the hard crab is much more important to the crabbers than that of the soft crab because it affects so many counties and so many more people are employed. Only 76,420 dozen soft crabs were marketed this period as against 115,842 dozen the previous period, and 10,000,000 pounds of hard crabs were produced this period at a value of \$400,000 compared with 9,000,000 pounds produced in the previous period.

REPORT OF DISTRICT SANITARIAN

CAPTAIN JOHN A. NELSON,
Fisheries Commissioner
Morehead City, N. C.

Dear Captain Nelson:

I have the pleasure of submitting to you a brief summary of the activities of the office of Shellfish Sanitation for the biennium ending June 30, 1944.

Though the manpower shortage has depleted the ranks of shellfish workers, annual "Certificates of Inspections" have been awarded to an average of 80 shellstock dealers, 35 shucking plants and 14 crab meat plants. In spite of a definite shortage of labor and materials, many plants have been remodeled and improved. A number of new oyster shucking plants are now under construction. Shellfish plant operators have begun to recognize good sanitation as a direct indicator of the degree of success of their businesses. All shellfish houses that have made complete efforts to comply with the adopted State and Federal sanitary regulations are well pleased with the results. North Carolina shellfish plants have taken their places among the leaders in the United States. While the majority of shellfish plants are of small size, some of this State's crab meat plants and clam houses are among the largest on the Atlantic seaboard.

Every North Carolina oyster shucking plant was inspected and graded monthly according to the adopted system of scoring. Every clam and oyster shellstock plant was inspected at least bi-monthly. Through sanitary inspection and frequent laboratory control work, the shellfish industry has been able to meet the requirements at all times, as set forth by the U. S. Public Health Service for inter-State shipping.

The production of crab meat has become a leading shellfish activity during the summer months. An average of 14 crab meat plants have been approved during the past biennium. Some of these plants pack more than a thousand pounds of crab meat per day. Monthly sanitary inspections and constant supervision of each plant together with bacteriological examinations of packed crab meat in cooperation with the U. S. Food and Drug Administration, have resulted in complete endorsement of North Carolina crab meat for inter-State commerce. Not one shipment has been condemned.

Due to the great increase in Armed Forces and civilian populations along the coastal areas and the accompanying increase in possibility of pollution of shellfish growing waters, a complete sanitary and bacteriological survey was begun May 15, 1944 with the assistance of the Division of Commercial Fisheries of the Department of Conservation and Development, and the U. S. Public Health Service. Any shellfish growing areas found to be dangerously polluted must be restricted. Constant patrol of the restricted areas adjacent to Morehead City and Beaufort have been maintained; several individuals have been apprehended and prosecuted for taking shellfish from the polluted areas.

In behalf of the N. C. State Board of Health, I take this opportunity to pay tribute for the wholehearted cooperation and assistance you and the members of your staff have extended me and my co-workers in the performance of our duties.

Respectfully submitted,
N. McKEITHEN CALDWELL,
District Sanitarian,
N. C. State Board of Health

DIAMOND-BACK TERRAPIN

For a number of years there has been no market for diamond-back terrapin, a fact that is hard to understand because the meat is just as good as it ever was. There are more of these shellfish in our waters today than there ever were before, largely because the Government has liberated thousands of young terrapin in our waters yearly. The U. S. Laboratory at Pivers Island, released 7,500 young terrapin in the State during the biennium.

PATROL BOATS

The Coast Guard still has the *John A. Nelson* in its service, but the *Hatteras* has been turned back, and is in service after extensive reconditioning. We are operating with the *Albemarle* stationed at Edenton, *Croatan* at Morehead City in place of the *John A. Nelson*, *Ocracoke* at Belhaven, *Neuse* at New Bern, *Pungo* and *Atlantic* at Morehead City patrolling the waters of Bogue, Core Sounds and Newport River.

KIND, QUANTITY AND VALUE OF FISH TAKEN IN WATERS OF NORTH CAROLINA

For the Period July 1, 1942 to June 30, 1944

Kind of Fish	No. Pounds	Value
Spotted Trout.....	3,000,000	\$ 600,000
Gray Trout.....	12,500,000	1,250,000
Sea Mullet.....	1,000,000	40,000
Blue Fish.....	1,200,000	120,000
Mullet.....	7,000,000	700,000
Croakers.....	8,000,000	400,000
Spots.....	15,000,000	900,000
Hogfish.....	700,000	35,000
Mackerel.....	1,000,000	120,000
Shad.....	2,000,000	700,000
Herring.....	31,500,000	630,000
Butters.....	1,000,000	50,000
Carp.....	1,000,000	100,000
Rock or Striped Bass.....	1,600,000	200,000
Flounders.....	2,500,000	300,000
Puppy Drum.....	750,000	75,000
White Perch.....	900,000	90,000
Cats.....	800,000	80,000
Eels.....	75,000	7,500
Jack.....	400,000	28,000
Pike.....	30,000	2,100
Pompano.....	10,000	2,000
Channel Bass.....	100,000	4,000
Sheephead.....	10,100	1,200
TOTAL FOOD FISH.....	91,475,000	\$ 6,434,800
Shrimp.....	5,900,000	590,000
Menhaden (No. Fish).....	369,490,000	1,847,550
TOTAL VALUE FIN FISH.....		\$ 8,872,350

SHELLFISH

Oysters.....	752,268 (bushels).....	\$ 752,268.00
Clams.....	75,431 (bushels).....	150,862.00
Soft Shell Crabs.....	76,420 (dozen).....	114,630.00
Escallops.....	2,000 (gallons).....	4,000.00
Hard Crabs.....	10,000,000 (pounds).....	400,000.00
Diamond-Back Terrapin.....	3,000 (pounds).....	600.00
TOTAL VALUE SHELLFISH.....		\$ 1,422,360.00

TOTALS

Value of Fin Fish.....	\$ 8,872,350.00
Value of Shellfish.....	1,422,360.00
TOTAL VALUE WATER PRODUCTS.....	\$10,294,710.00

STATEMENT OF RECEIPTS AND DISBURSEMENTS OF THE
DIVISION OF COMMERCIAL FISHERIES, DEPARTMENT
OF CONSERVATION AND DEVELOPMENT

For Biennium 1942-1943—1943-1944

	1942-43	1943-44
ADMINISTRATION AND INSPECTION:		
Commissioner's Salary.....	\$ 4,200.00	\$ 4,200.00
Salaries and Wages—Staff.....	13,932.90	13,941.65
Supplies.....	189.75	95.17
Postage, Telephone, and Telegraph.....	411.01	349.90
Travel Expense.....	670.23	576.95
Printing and Binding.....	197.92	499.46
Motor Vehicle Operation.....	2,759.30	2,318.85
Office Rent.....	1,000.00	1,000.00
Insurance and Bonding.....	88.55	80.00
Equipment.....		
Other Sources.....	17.47	50.00
Attorney's Fees.....		500.00
TOTAL.....	\$ 23,467.13	\$ 23,611.98
OPERATION PATROL BOATS:		
Salaries and Wages.....	\$ 5,635.28	\$ 7,577.50
Supplies.....	2,734.69	2,999.95
Gas and Oils.....	1,593.21	1,499.35
Repairs.....	4,632.77	1,797.07
Equipment.....	450.00	
Subsistence.....	1,056.67	1,203.60
Docks and Warehouses.....	260.36	499.97
Marking Fishing Limits.....	297.90	351.20
Fire Insurance—Patrol Boats.....	97.55	90.00
Purchase of Boat.....	1,800.00	
TOTAL.....	\$ 18,558.43	\$ 16,018.64
SHELLFISH SANITATION:		
Supplies and Materials.....	\$ 99.71	\$ 105.71
Equipment.....	62.00	
TOTAL.....	\$ 161.71	\$ 105.71
CYSTER DEMONSTRATION FARM:		
Salaries and Wages.....	\$	\$ 1,200.00
Supplies.....		277.79
Insurance and Bonding.....		13.50
Subsistence.....		240.00
TOTAL.....	\$	\$ 1,731.29

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*

	1942-1943	1943-1944
Employees' War Bonus.....	\$ 1,517.59	\$ 2,763.00
Transfer to 1944-45.....		588.00
TOTAL EXPENDITURES.....	\$ 43,704.86	\$ 44,818.62
Less Receipts.....	26,361.23	26,537.54
APPROPRIATION.....	\$ 17,343.63	\$ 18,281.08
RECEIPTS:		
Food Fish Licenses and Taxes.....	\$ 5,378.40	\$ 6,767.02
Oyster Licenses and Taxes.....	4,152.24	8,332.38
Escallop Licenses and Taxes.....	102.00	
Clam Licenses and Taxes.....	2,030.80	1,061.45
Crab Licenses and Taxes.....	2,578.64	1,878.71
Menhaden Licenses.....	9,276.25	5,865.00
Power Boat Licenses.....	238.25	272.50
Other Sources.....	2,604.65	2,360.48
TOTAL.....	\$ 26,361.23	\$ 26,537.54

DIVISION OF COMMERCE AND INDUSTRY

The turn-over in personnel in the Division of Commerce and Industry during the biennium covered by this report has been greater than for any similar period. The technical force at the close of the biennium is entirely different from that at the beginning.

Cecil E. Bell, who was made acting chief industrial engineer following his recovery from an accident early in 1942, resigned on March 15, 1943, to accept employment in private industry.

Robert W. Redwine, employed on a temporary part-time basis in August 1942, went back on a full-time basis with Eastman, Scott and Company, advertising agency, in August 1944.

Philip Schwartz began service with the Division in September 1943 as Industrial Analyst. This position had been open for some time because it had not been possible to find a person for the place.

In November 1942, Paul Kelly, Assistant Director of the Department, was put in charge of the Division, as industrial engineer, and has been serving in this capacity since that time.

J. E. Coad, Secretary of the Special Committee on War Industrial Coordination, has worked with the Department since the organization of this group in May 1942. The work of this committee has been closely allied with that of the Division, and its activities have been financed from appropriations made to the Division.

At no time during the biennium has the Division had more than half of the force provided for in the budget. The inavailability of men equipped by education and training has been the prevailing reason why vacancies in the staff have not been filled. This factor, has, of course, limited severely the program of the Division.

Broadly, the activities of the Division have been carried forward during the biennium under three headings, as follows: (1) General industrial and commercial promotion (2) Mineral promotion and (3) War contracts.

GENERAL INDUSTRIAL AND COMMERCIAL PROMOTION

Under war conditions, the work of this Division has passed through various phases. Immediately after the outbreak of hostilities and before that time under lend-lease, the major emphasis was on the conversion of existing industries to war production and also on the expansion of facilities for all-out production.

Conversion, under the guidance and with the assistance of various Federal agencies with the active cooperation of Gov. J. M. Broughton, the State Committee on War Industrial Coordination, the Division of Commerce and Industry, and various other agencies, went along rapidly.

At least partly because there were few of the heavier industries in North Carolina and therefore a limited background in this type of industry, with a few notable exceptions, relatively few strictly war industries have been located in the State.

The Division consistently, through advertisements, personal contacts in Washington, and other means called attention to the facilities in the State for increased war production in the form of additional plants. The Division was partly instrumental in helping to bring some plants to North Carolina which otherwise might have gone elsewhere. In a large number of cases, if not in a majority, new war plants were built around existing plants as a nucleuses. With few of the heavier industries operat-

ing in the State, there were only a limited number of units which could be expanded. Further, the State had few industrialists and only a limited amount of labor with the manufacturing background in the heavy industries, and it was necessary to bring much of the technical force from other States as well as to train labor in new lines.

The Division, during the period when most of the new plants for war production were being established, devoted most of its efforts toward helping to find locations for war plants. There efforts, in conjunction with other agencies, did result in the establishment of some new plants in North Carolina. In almost every case these plants were branches of other plants which found it necessary to expand operation in order to fill war contracts.

With building materials critically short and labor vitally needed for production, the location of new manufacturing facilities has depended, in North Carolina, largely upon the availability of industrial buildings and local labor. Even before the outbreak of war, the Division maintained a file of manufacturing space but when demands for buildings increased, efforts to find manufacturing space were redoubled. The Division has maintained constant contacts with communities throughout the State to keep industrial building data current. The establishment of several industries during this period grew directly out of calling existing buildings to the attention of industrialists and following up these leads.

During the latter part of the biennium, the thoughts of industrialists were turning more specifically toward reconversion and postwar planning. A number of firms, having completed or about to complete war contracts, are faced with immediate reconversion problems. Many of the large companies have assigned personnel to postwar plans and are giving careful study to these questions.

Plant Locations: During the period covered by this report, the Division has helped a number of manufacturers to find locations for permanent operations. In every case, the Division has worked with Chambers of Commerce or similar local organizations. Some of these plants, having found required buildings are now in operation while others are waiting until building materials and labor are available. Although specific information is not available in all cases, the construction costs of plants for industries which have decided to come into the State may conservatively be estimated at between \$5,000,000 and \$10,000,000.

On the basis of preliminary information, these new and proposed plants will furnish permanent employment to some 3,000 workers.

In addition to those companies which have definitely announced plans for postwar operations in North Carolina and which have become established during this report period, several others are actively considering locations in the State. In most of these cases representatives of the companies visited the State for a personal survey of general conditions and specific sites.

Some of the companies have indicated their preference for North Carolina and have optioned sites or have given more or less definite indications that they will become established in the State. Successful culmination of negotiations with the executives of these firms would result in the investment of several million dollars in new buildings and the employment of around 2,500 additional workers.

It is expected that probably a majority of the war plants that have been located in North Carolina will continue some permanent operation in the State. Some of them are manufacturing materials which will have wide civilian use. Others are giving definite consideration to new lines to be followed after the termination of their present contracts. The Division and other agencies, including the State Planning Board and local groups, are assisting in studies looking toward conversion to

permanent operations. In cases where the operating firms do not continue use of the buildings, these facilities are expected to be available for other companies. These buildings, in a majority of instances, were not in use before the war, and have been improved and put into condition for occupancy. These improvements will make them more suitable for postwar occupancy than before, and the problem of finding an industry to make use of the facilities will be greatly simplified.

MINERAL PROMOTION

North Carolina has long been widely known for its wide variety of minerals, but only a limited number of these have been produced commercially. War increased many fold the demand for most types of mineral products. Seizure by the enemy early in the war of the sources of some of the more important minerals and the shortage of shipping facilities brought about greatly accelerated mineral prospecting and investigations. The Division of Commerce and Industry, cooperating with the Division of Mineral Resources, carried out an active mineral development program to help supply badly needed materials of war and to develop the resources of the State.

Governor Broughton authorized H. A. Brassert and Company of New York to make a study of the coal, iron, and olivine with the objective of bringing about their development. From this survey and from other projects which followed has developed considerable information which, it is believed, will lead to the commercial production of additional minerals in the State.

Iron: A great deal of time was devoted to the iron resources of the State with the particular objective of helping to find a source of ores to relieve the threatened serious shortage which developed early in the war. This project was pursued vigorously following the preliminary Brassert report which is credited with bringing about wide-scale drilling and other exploratory work. These explorations indicate, as far as they have gone, that North Carolina has substantial and important deposits of iron ore. Laboratory work now being done is expected to show that these iron ores may constitute an important source for future use.

Coal: Considerable attention has likewise been given to the Deep River Coal field. Surveys and exploratory work have proved that North Carolina has in the Deep River area coal reserves running into the millions of tons.

This coal, North Carolina's only known large source of mineral fuel, is of high volatile content. Broad scale development of the field will be of tremendous advantage to the industrial and economic future of the State by furnishing a convenient source of by-products and other industrial uses.

As a result of the Department's advertising program and activities of this Division, contacts have been made and negotiations opened between the owners and prospective developers of the coal field.

Mica: Representatives of the Division worked with the industry, officials of other mica producing states, the Division of Mineral Resources, and various Federal agencies, including the Truman Committee, toward increasing the output of mica which at one period was classed as the most critical war material. The price of domestic mica was approximately doubled.

Several out-of-state mica producers were interested in North Carolina and one of these is said to have become the largest single producer in the State. Some 70 per cent of the domestic output comes from North Carolina.

Magnesium: For several years this Division has worked toward the development of the State's extensive olivine deposits, a source material for magnesium.

Two pilot plants utilizing North Carolina olivine as raw material for magnesium are now in operation. One of these plants, at Muscle Shoals, was set up by the Tennessee Valley Authority, with which the Department has worked for several years. The other plant is under the direction of Dr. Fritz Hansgird, at Black Mountain College. The Division assisted Dr. Hansgird in getting this plant set up.

Some of the country's largest metallurgical industries are advertising magnesium, because of its light weight and toughness as the "metal of tomorrow." It is the belief of many persons who seem to be in a position to know, that a considerable proportion of the facilities for producing magnesium for war use will not be able to stand postwar competition and will be discontinued. With almost inexhaustible quantities of high quality magnesium ores available in North Carolina, the future appears to hold out promise for the development of olivine when an economical and competitive method for producing magnesium from this source is proven.

Mineral Investigations: One of the recommendations of the Brassert report was for further exploratory work, particularly on iron and coal. The Division followed up this recommendation, working with and through the Boykin Steel Shortage Committee of the National House of Representatives, the U. S. Bureau of Mines, and members of the North Carolina delegation in Congress.

Funds were set up in the Bureau of Mines for mineral exploration, and allotments were made for various North Carolina projects including iron, coal, and other minerals.

Out of this appropriation, the U. S. Bureau of Mines, is establishing at N. C. State College in Raleigh an experimental mineral laboratory. It is contemplated that this laboratory will be staffed by some 30 technicians. Its objective is to develop the use pattern whereby minerals from North Carolina and neighboring states can be utilized in the most effective manner.

The Bureau has established at Salisbury a sponge iron experimental plant. Here are centered the Bureau's experiments in making sponge iron by the brick kiln method.

The Bureau also contemplates pilot plant experiments in the making of sponge iron by methods other than the brick kiln process at State College in Raleigh. In this connection there will be built at State College by the Bureau, as part of the new experiment station, a small open hearth furnace.

WAR INDUSTRIAL COORDINATION

Effective utilization of all industrial capacity in the country has been one of the basic wartime problems. This naturally involved the temporary discontinuation of certain lines of manufacture and slackening production in other lines, thus making available greater facilities and labor for the more essential items.

These changes could not, of course, be carried out without some disruptions and losses. In order to minimize the public and private losses in conversion to war production in North Carolina, Governor Broughton on June 15, 1942, appointed a Committee on War Industrial Coordination and a secretary to carry out its program. This activity was financed through the appropriations made to the Division of Commerce and Industry and set up to work through and in conjunction with the Division.

Personnel of this committee, which has served without financial remuneration of any kind, is as follows:

J. Ed Millis, Chairman, High Point
 Russell F. Hall, Vice Chairman, Greensboro
 T. Henry Wilson, Drexel
 John K. Barrow, Zebulon
 Frank Daniels, Raleigh
 J. Wesley Jones, Statesville
 Charles A. Cannon, Concord
 P. H. Hanes, Winston-Salem
 Col. Robert Baker, Greensboro
 Wm. D. Carmichael, Chapel Hill
 T. J. Hackney, Wilson
 Harry Straus, Brevard
 J. T. Hiers, Wilmington

Dr. Ben F. Royal, Norehead City
 J. Vivian Whitfield, Wallace
 L. Y. Ballentine, Varina
 Josh L. Horne, Jr., Rocky Mount
 Walter J. Damtoft, Canton

Ex-Officio

Governor J. Melville Broughton
 Irving F. Hall
 R. Bruce Etheridge
 Paul Kelly

The general program of the Committee at its first meeting was approved on June 30, 1942, as follows:

1. To render every possible assistance to industries throughout the State to keep our plants in operation during the war.
2. To extend every practicable aid to those plants equipped to handle War Contracts toward securing such contracts.
3. In the case of certain other plants, where conversion of equipment or materials is needed, to render help in their program and toward the solution of their problems.
4. Endeavor to bring to North Carolina such war industries and projects as may well fit into our facilities and conditions.

Furniture: Among the major industries of the State, it appeared from the beginning of the program that furniture would probably be affected more than most other lines, hence, much time was devoted to helping to obtain contracts and in converting over to other lines. Among contracts which the Committee helped to obtain were for desks, chairs, dormitory furniture, hospital tables, camp furniture, refrigerators, file cabinets, navy furniture, tent stakes, army cots, pigeon coops, ship fenders, munition boxes. Assistance was also given to some plants in obtaining contracts for the manufacture of aircraft parts. Some received orders for small boats or parts.

Farm Implements: On August 24, 1942, manufacturers of farm implements were called together, 17 of the 23 in the State being represented. The purpose of the meeting was to consolidate efforts to obtain increased quotas for production. During the following two months, a special sub-committee was able to work out substantial increases and in several cases operations were able to continue on even a larger scale than before.

Wood Products: At the meeting of the Committee at Wilmington, November 20, 1942, special attention was given to the extremely pressing problems involved in the supplying of wood in its various forms for essential purposes. Governor Broughton subsequently named a special committee to help in the situation, the purpose being to assist in getting a supply of wood in its various forms to war projects, to help solve manpower problems, to aid lumber and veneer mills to increase produc-

tion and to work with governmental agencies in the matter of price ceilings, priorities, and regulations affecting timber production and distribution. Named on this committee were:

John K. Barrow, Zebulon	G. N. Hutton, Hickory
T. Henry Wilson, Drexel	C. W. Green, Elizabethtown
Walter J. Damtoft, Asheville	A. S. Carpenter, Laurinburg
J. W. Foreman, Elizabeth City	J. T. Ryan, High Point
J. H. L. Myers, Oxford	Henry Foscue, High Point
Clarence English, Asheville	Dr. Ben F. Royal, Morehead City

Camouflage: War items obtained for production by North Carolina manufacturers were many and varied. Three companies were set up for the production of camouflage, and some 35 per cent of the entire Nation's need was supplied by these North Carolina firms. Collectively, these firms have been able to keep steadily employed more than 1,500 persons since early in February 1943. The program is at the time still carrying on and should continue well after January 1, 1945.

Ship Fenders: Ship fenders, which had previously been made out of rattan, were required to be made from saplings. One of the first firms in the Nation to start large production in this field was a North Carolina furniture company which is still manufacturing ship fenders in large quantities. It has produced more than 50 per cent of the government needs in this line and has employed upward of 500 workers.

Wooden Boats: Six different companies have been engaged in the manufacture of wooden boats. Assistance in obtaining contracts has been given on several occasions. Consistent efforts have been made to keep steady production in this field.

Parachutes: Assistance was given to five companies in obtaining contracts for the manufacture of fragment parachutes. In order that these companies might step up the production in these required items, it was necessary to assist them in obtaining special heavy power sewing machines. Machines were made available to three other companies engaged in war production.

Seaweed: Cooperation was given the Krim-Ko Company of Chicago in an effort to assist in establishing their company in North Carolina for the production of agar. In late 1943, this company engaged fishermen in the vicinity of Morehead City and Beaufort to collect 50,000 pounds of the seaweed known as *Gracilaria* from which the company extracted agar, used in bacteriological work, as an emulsifier, in films, and for many other purposes. Fishermen and other residents of communities from which the seaweed has been gathered received several thousand dollars for their work. Seaweed is gathered during spare time and over a period of several months. While the seaweed is now being processed elsewhere, the officials of the company promise that, as soon as the war is over, they will establish their plant in North Carolina and manufacture their product here. Surveys prove that there is an abundance of this weed along the shores of North Carolina—probably enough to supply the peacetime needs of the Nation. The country before the war was dependent largely on Japan for this product.

Dr. Glesinger: The attention of the Wood Products Committee was called to the enormous waste of forest products and the suggestion was made that something be done to utilize the waste of the wood working plants and in the forest. A member of our committee, T. Henry Wilson, reported that a prominent official of the Waste Wood Utilization Committee of Europe was in the United States and asked the Secretary to try to find him and, if possible, employ him to make a state-wide survey

on the utilization of waste wood products. This man was contacted at *Fortune Magazine* and was found to be Dr. Egon Glesinger, a well known authority on waste wood utilization. A proposition was received from him for a state wide survey. The committee was faced with the problem of raising several thousand dollars. When approached as to a plan for raising this money, Mr. Wilson offered to provide the required sum. It was largely through his generosity that the program was carried forward.

Port of Wilmington: Late in 1943, the Secretary assisted a committee from Wilmington in presenting a request to the U. S. Shipping Board, to make Wilmington a Port of Entry and that it be given certain Federal ships for loading with lend-lease cargoes. A grant from the Shipping Board was made, and since November 1, 1943, there have been three boats per month loaded at Wilmington and three return cargoes sent back to that port from the war zone.

New Industries: During the latter part of 1943, assistance was given in the opening of a new industry at Mount Airy, the Laurel Bluff Mills, producing parachutes and underwear for the government. This company has gone steadily on and is proving a valuable asset to that community.

Acquisition of power sewing machines, plus machines from the Welco Shoe Company, made possible the opening of a plant at Waynesville which has gone steadily along as a new and promising industry.

Late in November 1943, information was received that the Strickland Aircraft Company was moving from Topeka, Kansas. The company officials were interested in coming to the State, and early in January located at High Point where they have been steadily in production of war materials. The company is now employing 350 workers.

Print Paper Mill Project: During the past several months of this year, brochures covering suggested locations for print paper mills in the State have been submitted to prospects. Close contract has been kept with the Southern Newspaper Publishers Association and with the railroads in an effort to establish a print paper mill in the State. While no definite results in this line can as yet be reported, there is some hope that North Carolina may have such a mill in the future.

Fiber Board: Through contacts established through Dr. Glesinger, active contacts have been maintained with fiber board manufactueres with the hope that eventually one of these mills will come to North Carolina. Much encouragement in this direction has been received.

Forest Products Laboratory: Considerable work has been done with Secretary Claude Wickard, U. S. Department of Agriculture, looking to the establishment of a Forest Products Laboratory in North Carolina. There are hopes that provisions will be made for this project by the next Congress. This would provide a laboratory similar to the one now located at Madison, Wisconsin.

War Production Board: This office has maintained a very fine cooperative relationship with all branches of the War Production Board and the Smaller War Plants Board. Active cooperation was given by Irving F. Hall, and by T. J. Love, of the War Production Board. A similar relationship, has existed with the Smaller War Plants Board. The relationship of this office with C. E. McCallum has been splendid.

ANALYSES AND STATISTICS

Little could be accomplished toward the promotion of the industrial and commercial growth of the State without the guidance of compiled facts for presentation to the prospect. The individuals with which the Division deals are sound, deep-

thinking business men to whom must be presented a clear and thorough case on the advantages of a new location.

In almost every case, the prospect has a special problem. At times it is necessary to work up rather comprehensive briefs, giving facts pertinent to his problems. To meet these demands it is necessary to keep extensive files on many subjects and to reach out to diverse sources for data.

Until ten months before the end of the biennium, the Division was without the services of an analyst. This made it necessary for each engineer to work up data applying to each prospect, in addition to maintaining contacts and his sales efforts with the prospect.

One of the most important duties of the analyst, particularly during the period of shortage of building materials, has been to find and keep a record of available buildings throughout the State. This has been accomplished by means of questionnaires, personal contacts, news items, and through real estate agents, Chambers of Commerce, municipal officials, owners, and others. Several new industries for the State have come as a direct result of these building records. Had there been more manufacturing space available, there is no doubt that additional plants could have been located.

Even near the close of this biennium after it would seem that most war needs might have been provided, there has continued a demand for industrial buildings. Some of these were for space for manufacturing special war products and others were for forward-looking manufacturers preparing for postwar operations.

However, toward the close of the biennium, more inquirers were studying sites for postwar building projects. This has emphasized the need for additional studies to show the advantages and facilities of numerous sites and the collection of data for various requirements such as labor, water, power, sewage disposal, transportation, taxes, etc. Comprehensive files are being built up on these subjects and broken down for communities and particular sites.

Dinnerware Bulletin: In September 1943, the Division began the preparation of Bulletin No. 44, "Economic Opportunities for the Production of Semi-porcelain Dinnerware in North Carolina." Basic data were furnished by the T.V.A. and valuable cooperation was given by the Division of Mineral Resources and the Department of Ceramics of N. C. State College.

This bulletin was completed and ready for distribution at the close of the biennium. It has been distributed widely through the ceramics industry, to interested communities, engineers, and numerous other sources. As a result, several manufacturers have become interested and have signified their purpose of looking over the field in person to consider locations. It is believed that this bulletin has laid a sound foundation from which the industry will become established in the State in the future.

Because of the growing importance of plastics in the economy of the country, a general brief has been prepared for the information of manufacturers who might be interested in the State. Some active prospects have been developed as a result.

Industrial Directory: The most recent industrial directory of North Carolina was issued in 1938. This publication carried the names and locations of the various manufacturing and commercial enterprises of the State and basic data on each county. The list is now out of date, particularly in view of the numerous war changes and those which will come after the close of hostilities.

It is most desirable that a revised issue be printed soon after the close of the war as an inventory of the State industrial structure, a guide to buyers of North Carolina products, and as information helpful to manufacturers considering locations. An

industrial directory presents a tangible picture of industrial progress and at the same time shows lines logical for development. Preliminary work on this project has been underway in the Division for some time.

Studies of Postwar Sites: In order to fill requests for information concerning prospective sites for industries which are prosecuting active studies for permanent locations, the Division has started a file on this subject.

Data are being assembled, particularly for the use of those industries which have special water requirements, both as to volume and quality. The file on these and other sites also will contain information on transportation facilities, raw materials, power, labor supply, taxes, and other subjects in which the prospect may be interested. Already some of these sites have been purchased and plants are planned when building restrictions are lifted.

New Construction Data: The number of sound business enterprises looking toward definite community interest in their plant appears to be increasing. The Division has in several instances been requested to ascertain what communities will erect industrial buildings on a lease basis.

Most of the firms with which the Division is dealing are well able to put up their own buildings but they believe that they will be able to tie in closer with the community if it has an actual stake in the operation. In addition, there are some worthy enterprises, headed by well qualified executives, which need some financing either for space or for initial operations.

In order to be of assistance to groups of this nature, the Division has canvassed either by personal contact or other means most of the communities in North Carolina to ascertain if they would be interested in such propositions.

Industrial Brochure: As soon as necessary personnel can be had, it is the plan of the Division, with the cooperation of the News Bureau, to issue an attractive and well illustrated brochure on the general industrial attractions of North Carolina.

The proposed publication would be one to command the attention of busy executives and for distribution to a selected list. Its nature would be such as to impress the business man and to prompt further inquiries fitting his particular requirements.

Special Briefs: Briefs to show the advantages for specific industries in North Carolina are compiled from time to time by the Division.

Several briefs of this nature have been prepared during the biennium and others are contemplated. One of these, showing the advantages for meat packing, was assembled and circulated to leading meat packers of the country.

General data were compiled for distribution to the plastics industries. Information of interest to pulp manufacturers was mailed out to companies it is hoped to interest in North Carolina locations.

Later it is contemplated that briefs of similar nature may be worked up on starch and glass-making possibilities. Since all briefs must be based on facts sufficiently concrete to attract the interest of business men, considerable research and study is required.

POSTWAR PLANNING

Because of its limited staff, the Division has not found it possible to go deeply into this subject. The time of limited personnel has been occupied, to a major extent, in servicing and following up active prospects interested both in immediate facilities for war production or in projects to be carried out at the close of hostilities.

With the reactivation of the State Planning Board, a new source of helpful industrial information has developed and the two agencies are working in close coopera-

tion. The Planning Board has already placed on its schedule several research problems which should be of material aid to the Division. It is felt that the field of the Division is primarily in the mechanics of promoting the development of industry and commerce in the State while the Planning Board provides data gathered by research for use by the Division and other agencies. The field of operations of the two agencies is, therefore, complementary and not duplicating.

Indications are that more industries will choose locations in the near future than in any similar period in the history of the country. Supporting this belief have been announcements by some large plants of their purpose to decentralize operations. Many new products or refinements of old products will come into production as soon as permitted. Numerous manufacturers are faced with the necessity of discarding obsolete machinery and plants, and some of these are contemplating new locations. Other manufacturers want to get nearer to sources of raw materials and to markets for their products.

These factors add up to an unusual opportunity for North Carolina to sell the State to such prospects. Competition is keen between the States and those which wage aggressive campaigns and follow up closely on their prospects will profit most in creating new wealth for the people.

STATE ADVERTISING

A preponderance of the State advertising funds during the biennium has gone into industrial copy. The program was planned and carried out under the direction of the Division by the Advertising agency.

Particular efforts have been made to keep the theme of the advertising timely as was the case when copy set forth the belief that sponge iron, a potential North Carolina product, could help in relieving the war steel shortage. This advertisement initiated a program which has led to a comprehensive study of the mineral possibilities of the State.

The advertising copy has varied widely. Some advertisements have called attention to general advantages offered to industry by North Carolina and others have suggested and given basic reasons why specific industries are suited to the State. These include dinnerware, plastics, wood using industries, food processing, and numerous others.

STEAM POLLUTION

As population grows and the number of industries increases, the problem of the discharge of municipal and industrial wastes into the streams becomes greater.

Realizing this fact, the Department and other State agencies have joined hands with the Tennessee Valley Authority for the purpose of initiating a program looking forward to the solution of these problems. It is realized that the questions involved are broad and far-reaching, but it is hoped that these initial steps will lead to a constructive program.

The agencies concerned plan to work with industries and, wherever possible, help in the solution of their problems. Much can be accomplished through this form of cooperation.

DIVISION OF FORESTRY

Since World War II continued throughout the Biennium, our major efforts have naturally been directed toward helping in every possible way with the war effort. The gradual loss of most of the trained and experienced supervisory personnel and the substitution with men less familiar with the work and the conditions, when they can be had, has seriously affected both the amount and the effectiveness of the work accomplished. It is, therefore, a satisfaction to report that everyone in the Division has carried on to the best of their ability without complaining. The following changes have occurred:

Personnel. Roger D. Huff, who since November 1938, has been loaned to the State by the U. S. Forest Service for help in advising land-owners on timber management problems, was in October 1942 taken on part time for a Federal Timber Production Census in the State; and on August 1, 1943, he was withdrawn from State Supervision and assigned as Assistant Area Forester of the Timber Production War Project. Since office space was given this organization, Huff has still been readily available for advice and help.

In October 1943, W. C. Finley, of Michigan, was offered a position with the Division to continue the management work with private land-owners which Huff had been doing. He was to come at a moderate salary as soon as he could make the necessary arrangements. Arriving on November 15, 1943, he stayed only to the end of the year when he left to accept a position with the American Walnut Manufacturers Association.

Thomas W. Morse went into the Navy on March 7, 1944. It was not until June 1 that the services of Rubee J. Pearse, of Raleigh, were secured to superintend the State Park program until Morse's return. Pearse is a graduate of Cornell College and Harvard University School of Landscape Architecture. He has had wide experience in design and construction in several of the Southern States. During the interim, a large part of the direction of the branch of State Parks devolved upon P. A. Griffiths, owing to the illness of the State Forester.

L. L. Miller, Acting Assistant Superintendent of Parks since C. C. Stott began active service with the Army in March 1941, resigned as of April 15, 1944. Harold C. Bolick of Raleigh, a graduate of State College in Landscape Architecture, with nine years experience as landscape architect with the State Highway and Public Works Commission, was secured to take Miller's place, and reported for work May 1.

There has been much change in supervisory personnel in the Fire Control Branch. J. R. Spratt, Chief Inspector, was given leave of absence on February 1, 1943, for the duration and is now with the Navy. Paul W. Tillman, the Senior District Forester, was promoted to take his place. This left all of the districts to be supervised by men who have been only a short time in the State Forest Service.

W. L. Brewer, Jr., employed April 5, 1944 at Rockingham, took Tillman's place as District Forester at Fayetteville November 1, 1943, and J. H. Ruff was employed as District Forester at Rockingham on October 1, 1943. The other districts are now supervised by men promoted from the position of District Ranger. At Lenoir, M. M. Young (resigned Sept. 30, 1942) was succeeded by A. D. Williams, formerly County Warden of Burke; at Rocky Mount, R. L. Westerfield (resigned to enter

Army Sept. 30, 1943) was succeeded by E. C. Ferebee, District Ranger at Rocky Mount; and the new Elizabeth City District was placed in charge of M. M. Carstarphen, formerly County Warden of Edgecombe, on Sept. 1, 1943. Carstarphen entered the Navy two months later. The employment of Archie B. Smith as Ranger Inspector Jan. 1, 1943, working out of the Raleigh office, chiefly on War Emergency Projects, added a much needed official to the Forest Fire Control staff.

EDUCATION

The lack of personnel has prevented any progress in the educational program. The services of Dr. W. H. Wheeler, Chief Lecturer of the U. S. Forest Service, were secured for a series of lectures in the upper Coastal Plain from September 28 to October 2, 1942. He gave ten lectures in five counties to some 1,500 students and adults. Mr. Griffiths accompanied him on these trips. Since that time Dr. Wheeler, who during the past 20 years, has instructed and entertained many audiences in this State, has retired.

Occasional illustrated lectures and talks have been given by Griffiths and the State Forester gave a paper on "Birds as Foresters," which was published in "Chat."

Publications. There has been little opportunity of preparing material for publication, much as some informational bulletins are needed. In March 1943, Circular No. 25, "Suggestions for Managing Woodlands and Marketing Forest Products," prepared by Roger D. Huff, when working in cooperation with the Division, was issued in an edition of 2,000 copies. This has been distributed to parties seeking information, especially those who may be interested in better forest management.

Following the special appropriation of \$1,000 by the General Assembly of 1943 to cover the cost of a new edition of "Common Forest Trees," some small corrections and amendments were made, especially in adding half a dozen species to those described and in appending lists of less important trees and some introduced trees. An edition of 15,000 copies was printed by the Owen G. Dunn Company of New Bern, who did an excellent job. The seventy-six cuts used were nearly all borrowed from the U. S. Forest Service and from the State of Florida. Since the books were not received until nearly the end of the school year, in the spring of 1944, distribution was mostly held up until school work gets underway in the fall.

Timber Farms Program. At a meeting of the Executive Committee of the North Carolina Forestry Association in Raleigh, May 17, 1943, the resignation of Colin Spencer of Carthage as president was accepted and Dr. C. F. Korstian, Dean of the Duke School of Forestry, was elected in his place. Mr. Spencer has for two years been extremely active in carrying on the office of president and it was only due to a serious illness that he found it necessary to hand in his resignation. One of the Association's important projects is cooperation with the Southern Pine Association in the offering of awards to woodland owners who handle their property on a conservative basis. This "Timber Farms Program" recognizes, with a certificate of award, the owner of woodland who is practicing forestry as a settled policy in the management of his timber crops. A committee composed of a Federal Forester, the Extension Forester and the State Forester, representing the three chief public forestry agencies, was appointed to make final recommendations on applicants for the award. It is thought that this project will do much to bring about better management of private woodlands in this State. At the annual meeting of the Association held in Raleigh May 17, 1944, the first ten Timber Farm Awards were announced. The Southern Pine Association will furnish notice boards to be placed conspicuously

on the property announcing this honor. Successful candidates for these awards are being announced in the excellent quarterly journal of the North Carolina Forestry Association, "Forest Notes."

LEGISLATION

Very little legislation relating to forestry was enacted by the General Assembly of 1943. Chapters 660 and 661 of the Session Laws of 1943 slightly amended existing laws relating to forest fires, the former removing a legal restriction on the authority of County Commissioners to allot funds for fire control, and the second, increasing the penalty for setting fire "with willful or malicious intent to damage the property of another."

Two proposed measures of considerable importance were not enacted. At the request of Representative E. S. Askew, a former member of the Board of Conservation and Development, a bill was drawn up requiring the leaving of seed trees in timber harvesting operations. Some other provisions looking to better cutting practices were also included. After several amendments, the Bill passed the House with unexpectedly strong support. The rush of business at the close of the Session was probably largely responsible for its failure to be enacted.

A bill to establish one legal rule for measuring saw timber was sponsored by the Weights and Measures Division of the Department of Agriculture in which the Division of Forestry was interested. This Division was asked its opinion as to which was the fairest log rule to both buyer and seller of timber, and the International ($\frac{1}{4}$ inch Kerf) log rule was unhesitatingly recommended. This rule gives contents of logs equivalent to what large or small mills of average efficiency can cut out of them. This is in contrast to the Doyle rule, used largely by timber buyers in eastern North Carolina, which gives 50 per cent and less of actual content for logs nine inches and under, up to 88 per cent of 20 inch logs, which sizes include practically all of our second growth timber. The bill would have made illegal the sale of round timber by any other rule. This measure will no doubt be revived in some form when the war is over because a just and definite standard of measurement is desirable. It would seem that the almost world-wide practice of measuring all forms of timber content should be generally adopted in this country.

Cutting Practices Bill Recommended. Following the recommendation of the State Forester that consideration be given to the preparation of a tentative bill to bring about better cutting practices in the State, the Board of Conservation and Development, at its regular July, 1943 meeting, adopted the following resolution: "The Board recognizes the universal demand for conservation of our forest resources, as well as widespread interest in possible public regulation of forest practices on private lands. It, therefore, requests the State Forester to obtain and furnish to members of the Forestry and Parks Committee copies of recent laws enacted by the States of Maryland and Massachusetts on this subject. Copies of other similar proposals, together with opinions upon possible value thereof to North Carolina are likewise requested." This same subject has also been under consideration by special committees of the Appalachian Section of the Society of American Foresters and the North Carolina Forestry Association. It is hoped that the united efforts of these agencies will result in an effective bill acceptable alike to land-owners and the General Assembly.

FEDERAL RELATIONS

National Forest Acquisition. This Department has been kept informed of the progress of the Federal acquisition program as relating to the National Forests.

Practically no funds have been available for Federal acquisition during the war and only a few tracts already provided for were purchased. One of these was a property just north of Lake Tahoma in McDowell County, adding some eleven hundred acres to the Pisgah National Forest. The tabulation below gives the method of acquisition and the area of National Forest Lands in North Carolina as of June 30, 1944:

Unit	Acquired by Purchase or Exchange (Acres)	Transferred to Nat'l Forest by other Agencies (Acres)	Total U. S. Land as of 6-30-44 (Acres)	Under Contract but not Acquired (Acres)	Total when Contract completed (Acres)
Cherokee	327		327		327
Croatan	123,364		123,364	32	123,396
Nantahala	342,533	24,171	366,704	12,275	378,979
Pisgah	465,480	454	465,934		465,934
Uwharrie	36,809		36,809	2	36,811
Totals	968,513	24,625	993,138	12,309	1,005,447

* Two thousand five hundred and nineteen acres of purchased land which has been transferred to Navy Department not included.

Timber Production War Project. In the spring of 1943 when the Government was getting uneasy about the serious decline in production of timber products essential for war, the War Production Board proposed a "Forest Products Service," with power to take over mills, timber, equipment and labor if necessary to increase production. The U. S. Forest Service was asked to take over and operate this so-called "service." Such a protest went up from industry, State Foresters and the general public that the matter was dropped in its original form. But the need for some facilitating agency continued, and the "TPWeepy" was born. At the invitation of the U. S. Forest Service, the State Forester attended a meeting in Atlanta July 22, as representative of the Southern State Foresters, at which plans already decided upon for the establishing and operating of the Timber Production War Projects were outlined and discussed. H. B. Bosworth, Supervisor of the Pisgah National Forest, was then assigned to head up this new Federal activity in this State as Area Forester. On his moving to Raleigh he was furnished rather crowded but free office space in the Division of Forestry and he installed as his assistant, Roger D. Huff, thus taking the latter from the forest management work which he had been carrying on for three or four years as a cooperating forester. The State was divided into four TPWP Districts and competent men placed in charge of each. The idea of the whole organization is to facilitate the production of forest products necessary to the war effort by aiding lumbermen to secure timber and needed equipment, as well as to show them and woodland owners how to cut timber without unnecessarily reducing the annual yield.

Norris Doxey. For several years past the Federal Government has been offering to this State small sums on a 50-50 cooperative basis to assist in the employment of one or more foresters to advise owners of woodland in the management of their timber crops. However, the requirements have been such that acceptance of the offer has been impracticable. In the summer of 1942 a similar offer was transmitted to this Department by the Forest Service but for a much larger sum (\$12,000), with the understanding that if it could not be accepted it would be offered to the Agri-

cultural Extension Service. Realizing that there was no loose money in the Forestry Budget and that the possibility of securing any such sum as an emergency allotment was hopeless, the offer was declined after a full discussion with the Director and the representative of the Regional office on September 28. That same day, in Dean Schaub's office at State College, an agreement was drawn up and witnessed by the State Forester under which the Extension Service would match the fund offered, select and supervise the work of six farm forestry experts, each located and working in a separate district of from two to four counties. By December 1 the six new farm foresters had been engaged by the Extension Service and they were given a week's special training. The State Forester seems to have some implied responsibilities in connection with this program and has been receiving copies of the Farm Foresters monthly reports, which contain helpful figures on timber prices.

Forest Fire Fighters Service. At a meeting held in Raleigh on July 23, 1942, of all State and Federal officials concerned with the protection from fire of the forest areas of the State under the direction of the State Director of Civilian Defense, the organization of the Forest Fire Fighters Service as a branch of the Office of Civilian Defense was planned and the State Forester was named State Coordinator to head up this special protection work. Owing to the shortness of help, the State Forester endeavored to handle this war effort himself and made two or three trips through eastern North Carolina in an effort to establish the organization in some 28 eastern counties. In each of these counties the Army and Navy felt that special efforts were necessary to prevent the smoke from interfering with maneuvers and forest fires from lighting up the coast at night. Fairly effective overhead organizations were secured in several counties; however, since there was no one able to devote a great deal of time to organization and training, in only a few cases were effective results achieved. The State Office of Civilian Defense found itself unable to do any printing for this branch of the work so the Division of Forestry finally, printed the necessary cards. Arm bands and some printed and mimeographed material were received from the Washington office, nearly all of which remains unused, owing to the gradual decline of the project due to the favorable progress of the war. The training of local groups was started and "Tag Bags" made by the Girl Scouts were distributed largely to sportsmen using the woods in the fall of 1943. Following the suspension of regular meetings by the Office of Civilian Defense, this effort was amalgamated with the regular fire control work of the Division in February 1944.

Judging by the limited experience of the past two years, it would seem that owing to the absence of the men at war and war work, the better results might have been obtained by devoting more time to organizing high school boys and girls. This was done successfully in a few cases.

STATE RELATIONS

State Soil Conservation Committee. As a member of the State Soil Conservation Committee provided for in Chapter 139, Paragraph 4-A, General Statutes 1943, the State Forester attended practically all meetings of this Committee which were held in the office of the Chairman, Dean I. O. Schaub. The proceedings usually dealt with the various processes in the creation of new Soil Conservation Districts and with the promotion of activities provided for in this law. In March 1943, the creation of the Albemarle District was approved, contingent upon the other procedure defined in the law. The District was recommended with the idea of including the Bear Swamp drainage proposal. This proposal, made by the U. S. Soil Conservation Service, was to drain a part or all of Bear Swamp lying within Chowan and Perquimans counties. Possible objection to this project was brought forward in

that the drainage of peat swamps might eventually leave the drained land subject to destruction by fire as has occurred in so many earlier drainage projects. Some objection was also raised against carrying out a drainage project without the specific approval of some State authority. However, the organization of this District was approved on the basis of its being a Governmental experimental project. The same objections were raised when the Soil Conservation Service proposed to drain Lyon Swamp in Pender and Bladen counties, which had been drained years ago and subsequently abandoned. Both of these cases, it was shown, that peaty lands were not involved. The former project has been completed while the latter has found difficulty in completing its organization. It would seem that the State should have more authority to approve or disapprove such drainage projects than is given by requiring the Director of the Department of Conservation and Development to nominate a drainage engineer to be one of the three viewers to make report to the Clerk of the Court of the County concerned. The large amounts of money involved in large drainage projects and the risks of failure and of ultimate destruction of the soil it would seem that the State should have final authority. It seems that Chapter 107, Agricultural Development Districts, and Chapter 156, Drainage, could well be amalgamated and revised and in doing so give the State the authority over the use of lands which it seems the Federal Government is now in a way of usurping.

The State Soil Conservation Districts law provides for the organization of Districts with three representative farmers as supervisors of each District and the Division of Forestry has been represented at several of these meetings and an effort has been made to emphasize the need for better forest practices.

Department of Archives and History. For many years old correspondence, office reports and other material in the forestry files, has been accumulating and has been moved a number of times in the past 20 years. The Director, therefore, accepted an offer of the Director of Archives and History to go through this material and salvage all that seemed to him of importance. In September 1943, a large part of these old files was turned over to Dr. C. C. Crittendon and his assistants, who are sorting over the material as opportunity offers.

War Industries Coordinating Committee. At the invitation of Governor Broughton, Dr. Egon Glesinger, an expert in the chemical forest products industries, came to North Carolina in October 1943 and made a study of wood waste, with the idea of recommending fuller utilization of the waste material which now results from present practices in some of our industries. He travelled under the guidance of J. E. Coad, Secretary of the War Industries Coordination Committee. With the financial backing of Henry Wilson, of the Drexel Furniture Company, Dr. Glesinger made an intensely interesting verbal report to a group of State officials and industrialists in Raleigh, January 25, 1944, but his final report will not become available until after December 15, 1944. However, he felt that there was ample room in North Carolina for the profitable utilization of much of the waste now suffered in converting timber into marketable products.

FOREST FIRE CONTROL

The forest area under protection by the State Forest Service increased to the extent of more than 750,000 acres during the two-year period covered by this report. As is indicated by the following Progress Chart, this is due primarily to a progressive increase in the number of protected (or cooperating) counties. The long-standing policy of financial cooperation in fire control by the Federal Government under Section 2 of the Clarke-McNary Law continued in effect. During this period the Fed-

eral appropriation was considerably increased, directly reflecting increases in State and County appropriations available, as well as an increase in the Federal funds themselves. This increase in available Federal money had been long sought by the States and by interested forestry organizations, and resulted, of course, from action by Congress in pursuance of this widespread interest. The considerable increase in direct State appropriation during fiscal year 1943-44 is of particular importance. Since this State appropriation, under our system of financial cooperation with counties and private landowners, is the key of the financial picture, the Progress Chart indicates the increased County and private funds resulting directly from the higher State appropriation.

There are still at least a dozen counties in the State whose forest area, forest fire risks, and other considerations put them in great need of organized fire control by the State Forest Service. Many of these counties are in the region along or close to the coast north of Onslow County. As the last biennial report indicated, the situation with respect to the war and particularly the anti-submarine campaign along the eastern coast demanded intensification of the fire control program in coastal counties. This intensification was brought about almost entirely by Federal emergency money, appropriated by Congress for the express purpose of forest fire control in designated Critical Defense Areas. Beginning with the Fall fire season of 1942 the following such areas were defined and special protective organizations set up in eastern North Carolina:

Dismal Swamp Protection Area of 500,000' acres.

Camp Davis—Coastal Protection Area of 1,694,975 acres.

Fort Bragg Protection Area of 250,000 acres.

Camp Butner—Raleigh-Durham Airport Protection Area of 70,000 acres.

Camp Mackall Protection Area of 60,000 acres.

The total Federal emergency funds available for this intensified protection for the fiscal year 1942-43 were \$109,000. This money, of course, represented an *addition* to our regular funds, and permitted for the first time in State Forest Service history an approach toward Adequate Protection Funds in those counties included within the above total area.

Reflecting improvement in the general war picture, and particularly in the situation regarding the anti-submarine campaign on the Atlantic coast, the Federal emergency funds were reduced during the next fiscal year. The total of approximately \$90,000 during 1943-44 was allotted to the following Critical Areas:

Dismal Swamp Protection Area of 317,400 acres.

Camp Davis—Coastal Protection Area of 1,700,000.

Camp Butner—Raleigh-Durham Airport Protection area of 90,000 acres.

Fort Bragg—Camp Mackall Protection Area of 310,000 acres.

Laurinburg-Maxton Air Base Protection Area of 24,400 acres.

Again, these emergency funds resulted in appreciably better protection being afforded to the areas concerned. The availability of these funds during both of the fiscal years was of great importance. Actually, not all of the emergency money could be put into *additional* personnel and equipment, due largely to extreme shortages in both manpower and equipment (especially during the second fiscal year). A very considerable part of the emergency money, then, went into absolutely necessary increases in the wages of temporary and seasonal personnel, in order to attract such personnel from the booming construction jobs in defense industries and Naval

installations in the coastal counties. Nevertheless, the net result was about the same—the emergency money permitted the use of personnel which could not have otherwise been obtained.

Following June 30, 1944, the critical area program was still further financially reduced; such reduction will, of course, be pointed out in the ensuing biennial report.

Supervisory Personnel: As was the case in nearly all lines of civilian endeavor, personnel problems were acute during this two-year period. This was particularly true with our technical forester personnel and our seasonal manpower (such as temporary towermen, smokechasers, and fire crews). As the Progress Chart indicates there were only three District Foresters at the end of the period, against four at the beginning. This is despite the fact that as of July 1, 1943, a seventh District Office was opened at Elizabeth City, thus dividing our protected area into seven Protection Districts in place of the six districts in existence for some years. As of June 30, 1944, four of these seven districts were in charge of District Rangers (non-technical men) as Acting District Foresters.

The seven District Offices as of June 1944 were located as follows: District 1, Asheville; District 2, Lenoir; District 3, Rockingham; District 4, New Bern; District 5, Rocky Mount; District 6, Fayetteville; District 7, Elizabeth City. Personnel of these offices are listed under "Department Personnel" in the fore part of this Report.

Present Organization: The Progress Chart indicates the changes in personnel by title in the course of the two-year period. As has been the case for some years, each of the sixty-one counties under protection in June 1944 had a salaried full-time County Forest Warden; eleven of these County Wardens were also the County Game Protectors in their respective counties, their salaries being paid jointly by the two divisions of this Department. With only three or four exceptions, each of the County Wardens and Association Rangers was equipped (as of the end of this period) with a State-owned $\frac{1}{2}$ ton pickup truck for use in forest fire control work (these exceptions were removed early in the Fiscal Year 1944-45 by acquisition of several surplus Army pickups).

In the Fall of 1943, Budget Bureau approval was obtained for assignment of one of our District Rangers to the Central Office as Law Enforcement Ranger on a State-wide action basis. Impossibility of suitable replacement personnel, however, precluded the filling of this highly important position during that Fiscal Year, it is hoped that it can be filled during Fiscal Year 1944-45.

The increase of one Central Office Supervisor during the biennium represents employment of a Ranger-Inspector, effective January 1, 1943, paid from Emergency Funds, for the purpose of inspecting directly and supervising the Critical Area Organizations (under authority, of course, of the individual District Forester). Ranger-Inspector Archie B. Smith of Asheville has filled this position, bringing with it a background of eight or nine years of experience with the C. C. C. Program.

County Cooperation: Our financial cooperative program with the several counties continued on the same 50-50 basis as during past years. On this basis the Department and the County share equally the fire control costs within the County, the county bearing no portion of the costs of supervision as represented by the Central and District Offices and their personnel. It is again gratifying to point out that the attitude of the counties toward the Program and toward their financial respect therein is excellent. During the two-year period we increased the number of protected counties about as rapidly as increased Department funds justified, along with the essential gradual intensification of the work in existing protected areas.

PROGRESS CHART

Fire Control Personnel	As of June 30, 1942	As of June 30, 1943	As of June 30, 1944
Central Office Supervisors.....	2	⁶ 3	⁶ 3
District Inspectors.....	1		
District Foresters.....	4	5	3
District Rangers.....	6	9	12
County Forest Wardens.....	58	59	61
Protective Association Rangers.....	8	8	8
Counties Cooperating.....	58	59	61
Private Timberland Owners Cooperating.....	47	36	37
Forest Area Under State Protection (Acres).....	11,711,983	12,266,666	12,475,329
FINANCES:			
Appropriation by Counties.....	\$ 68,550	\$ 77,945	\$ 84,430
Appropriation by Private Owners.....	9,700	10,092	12,225
Appropriation by State for Fire Control.....	² 58,350	² 58,450	
		¹ 1,100	103,025
Regular Appropriation by Federal Government.....	71,192	72,270	
		⁴ 5,000	95,577
Special Emergency Appropriation by Federal Government.....	³ 2,000	⁵ 109,000	⁵ 89,855
TOTAL APPROPRIATIONS.....	\$ 209,792	\$ 333,857	\$ 385,112
Actual Funds Available Per Acre Protected.....	1.8 cents	2.7 cents	3.1 cents

¹ Forest Management funds for Fire Control on Bladen Lakes State Forest

² State appropriation was \$58,750 but some was assigned as FFC share of expense of Board of Conservation and Development.

³ Special Federal allotment for FFC on Sandhills Army Maneuver Area (matched by 3 counties and State).

⁴ Added Federal allotment for preceding F.Y. (received in July and used in this F.Y.).

⁵ Emergency Federal allotments available for Critical Defense Areas.

⁶ One of these is a Ranger-Inspector for Critical Defense Areas (paid from Emergency funds).

NOTE: Adequate and efficient forest fire protection on a State-wide basis could be given to all of the State non-Federal forest area (about 17,000,000 acres) at a cost of about 6 cents per acre per year. This figure results from a Survey being made at the present time by the Department in cooperation with all other Southern States and with the United States Forest Service.

For the first time in a number of years, funds available to the Department during the biennium (and particularly the second year) were sufficient to enable acceptance of cooperation by all counties which specifically requested it. As indicated above, there was also sufficient money available to permit progress toward intensification. As the Progress Chart indicates, total funds available during the second Fiscal Year were slightly over three cents per acre, as against less than two cents per acre during the Fiscal Year ending in June 1942. Further intensification is, of course urgent, since the Cost of Adequate Protection on a State-wide basis, for North Carolina has been for some years estimated at about four and one-half cents per acre. It is to be noted here that a revision of this Adequate Protection Cost in all States is being undertaken early in Fiscal Year 1944-45. The results of this revision will appear in the ensuing biennium Report; meanwhile it is estimated that the revised figure for North Carolina, based upon the experience of the past ten years of more effective State Forest Service Administration, will be calculated at possibly six or seven cents per forest acre per year on a State-wide basis.

In a report to the Department's Board for the first half of 1943, the Chief of Forest Fire Control pointed out that in the case of a good many of our cooperating counties we were reaching the "saturation point" with regard to appropriations those counties could afford for the fire control program. This is particularly true in the case of

counties with large forest land areas and small industrialized or farming areas, such counties being sometimes termed the "poor counties." As we progress toward our goal of Adequate State-wide fire control, it is felt that we shall have to make increasing provision for the sort of program under which we will spend in those counties considerably more money from our Department funds than from the counties' own funds. In other words, the program for those counties which cannot afford 50-50 financial cooperation, but which definitely need added protection for their important forest areas, must be based upon a different division of costs, possibly as much as 75 per cent from Departmental funds and only 25 per cent from county funds.

Private Cooperation: It will be noted from the Progress Chart that the number of Private forest landowners taking advantage of our Private Protective Association arrangement decreased somewhat during the biennium. The area listed by such owners likewise decreased. It is felt that this is a rather healthy sign, as indicating the increased effectiveness of the Public-Agency Program represented by operations of the State Forest Service, supported solely by State, County, and Federal tax money. Although added Private cooperation is easily available, particularly from large forest landowners such as some of the forest products industries, it is our belief that desirable and proper growth of the program based upon tax money offers a sounder basis for progress.

Land Use Area: The two preceding biennial reports outlined cooperative arrangements for forest fire control on the Bladen Lakes Land Use Area in Bladen County and the Sandhills Land Use Area in Richmond, Scotland and Moore counties. During the first year of the current biennium the Sandhills Area was removed from administration of this Department in order to permit its use by the Army for establishment and operation of Camp Mackall. Fire protection on the outskirts of the Area and on contiguous lands was handled during the remainder of the biennium by the State Forest Service in cooperation with Camp Mackall authorities, but without any formal written agreement. The Bladen Lakes Area, as is pointed out elsewhere in this report, became the Bladen Lakes State Forest under long-time lease from the Federal Government to this Department. Forest fire control in that State Forest was, of course, handled entirely by the Division of Forestry.

TABLE A
COUNTIES COOPERATING AND ANNUAL SUMS MADE
AVAILABLE BY THEM

County	1940-41	1941-42	1942-43	1943-44
Alleghany.....	\$ 750	\$ 750	\$ 750	\$ 750
Anson.....	700	1,000	1,200	1,600
Avery.....	750	850	1,000	1,000
Beaufort.....	1,250	1,250	1,250	1,500
Bertie.....	1,500	1,500	1,700	1,700
Bladen.....	1,500	1,500	2,000	2,000
Brunswick.....	2,000	2,000	3,000	3,000
Buncombe.....	1,300	1,500	1,300	1,500
Burke.....	1,750	2,000	2,000	2,000
Caldwell.....	1,075	1,250	1,400	1,400
Chatham.....	700	1,000	900	900
Cherokee.....	1,000	1,000	1,000	1,000
Columbus.....	1,700	2,000	2,250	3,000
Craven.....	1,100	1,250	1,500	2,000
Cumberland.....	1,500	1,250	1,800	1,800
Dare.....	1,200	1,200	1,200	1,200
Durham.....	800	800	1,200	1,200
Duplin.....	1,800	1,800	1,800	1,800
Edgecombe.....	1,000	1,000	1,000	1,000
Gates.....		1,000	1,000	1,000
Graham.....	875	800	1,000	1,000
Greene.....	600	600	900	900
Halifax.....	1,000	1,200	1,200	1,200
Harnett.....	850	850	1,100	1,100
Haywood.....	1,000	1,000	1,000	1,000
Henderson.....	1,050	1,050	1,050	1,200
Hertford.....	750	900	900	900
*Hoke.....	450	225		
Jackson.....	800	950	1,000	1,000
Jones.....	750	750	1,250	1,250
Johnston.....	1,250	1,250	1,500	1,500
Lee.....	500	500	700	700
Lenoir.....	800	800	800	1,000
Macon.....	750	750	750	750
Martin.....	1,050	1,050	1,700	1,700
McDowell.....	1,000	1,000	1,080	1,080
Montgomery.....	850	1,000	1,000	1,000
Moore.....	1,250	2,200	2,200	2,200
Nash.....	1,250	1,250	1,250	1,500
Northampton.....	750	1,000	1,250	1,250
Onslow.....	1,000	1,000	1,250	1,250
Orange.....				1,200
Pamlico.....			1,500	1,500
Perquimans.....				1,200
Pitt.....	1,200	1,200	1,200	1,350
Polk.....	750	1,000	1,100	1,200
Pender.....	1,500	1,500	1,615	1,500
Richmond.....	1,250	1,250	1,500	1,500
Robeson.....	1,800	1,800	2,000	2,000
Rutherford.....	1,300	1,600	2,000	2,000
Sampson.....	1,500	1,500	2,000	1,750
Scotland.....	600	600	1,000	1,000
Surry.....	700	700	900	900

* Work in County discontinued January 1, 1942.

TABLE A—Continued

County	1940-41	1941-42	1942-43	1943-44
Swain.....	1,009	1,000	1,000	1,000
Transylvania.....	900	1,200	1,200	1,200
Warren.....	750	1,000	1,000	1,000
Wake.....	1,200	1,200	1,200	1,200
Washington.....	1,050	1,250	1,500	1,500
Watauga.....				1,000
Wayne.....	1,250	1,400	1,400	1,400
Wilkes.....	1,200	1,200	1,500	2,000
Wilson.....	900	900	1,200	1,200
Yancey.....	500	750	1,000	1,000
NUMBER COUNTIES COOPERATING.....	58	59	59	62

TABLE B
FOREST PROTECTIVE ASSOCIATIONS

Name of Association	Assessment Rate		Location—County	Number Individuals in Associations		Acreage Listed	
	1942-43	1943-44		1942-43	1943-44	1942-43	1943-44
Elk Creek.....	1½	2½	Watauga, Wilkes, Caldwell	1	1	40,000	40,000
South Mountain.....	1	1	Burke, McDowell, Rutherford, Cleveland	6	5	34,643	34,393
State College.....	2	3	Onslow, Jones.....	2	2	85,000	97,000
Sandy Run.....	2½	3	Onslow.....	1	1	40,487	39,477
Holly Shelter.....	4	4	Pender.....	2	2	18,572	15,078
Orton.....	2½	3	Brunswick.....	8	8	45,682	49,833
Overhills.....	1	1	Harnett, Hoke, Cumberland	2	2	16,000	16,000
Riegel.....	1½	1½	Brunswick, Columbus.....	1	4	140,000	156,863
Southern Brunswick	3½	4	Brunswick, Columbus.....	4	4	19,850	20,763
Waccamaw.....	4	4	Columbus, Bladen.....	7	8	35,184	37,384
Thompson.....			Martin.....	1			
Camp Mfg. Co.....			Bertie, Gates, Hertford.....	1			

TABLE C
LIST OF STATE LOOKOUT TOWERS (to 6-30-44)

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Mt. Mitchell.....	35'0"	Yancey.....	1927	Donation	\$ 25,000	3-room
High Windy.....	45'9"	Buncombe.....	1934	CCC	969	1-room
Tryon Mountain.....	45'9"	Polk.....	1934	CCC	873	1-room
Spivey Mountain.....	35'6"	Buncombe.....	1928	NCFS	778	1-room
Chambers Mountain.....	45'9"	Haywood.....	1934	CCC	942	1-room
Toxaway Mountain.....	45'9"	Transylvania-Jackson.....	1935	CCC	889	1-room
Sassafras Mountain.....	35'0"	Transylvania.....	1932	NCFS & SCFS	750	SCFS home
Corbin Mountain.....	35'0"	Henderson.....	1932	NCFS & SCFS	750	SCFS home
Bearwallow Mountain.....	47'6"	Buncombe-Henderson.....	1934	NCFS & CCC	800	1-room
Rendezvous Mountain.....	59'3"	Wilkes.....	1934	CCC	824	3-room
Pore's Knob.....	47'0"	Wilkes.....	1929	NCFS	861	1-room
Hibriten Mountain.....	80'0"	Caldwell.....	1927	NCFS & CCC	1,727	1-room
High Peak.....	59'3"	Burke.....	1934	CCC	981	1-room
Horse Ridge.....	35'0"	Burke.....	1928	NCFS	423	1-room
Biggerstaff Mountain.....	47'9"	Rutherford.....	1934	NCFS & CCC	749	1-room
Pinnacle Mountain.....	45'9"	Rutherford.....	1934	CCC	894	1-room
Roaring Gap.....	59'3"	Alleghany.....	1935	CCC	963	1-room
Scotland.....	72'9"	Scotland.....	1934	CCC	1,249	2-room
Southern Pines.....	72'9"	Moore.....	1934	CCC	991	4-room
Ellerbe.....	59'3"	Richmond.....	1934	CCC	1,273	4-room
Mt. Tirzah.....	72'9"	Person.....	1934	CCC	1,340	2-room
Bayleaf.....	99'9"	Wake.....	1937	CCC	1,761	4-room
Tuscarora.....	99'9"	Craven.....	1934	CCC	1,355	2-room
Wilmar.....	99'9"	Craven.....	1935	CCC	2,149	3-room
Wilson.....	99'9"	Wilson.....	1935	CCC	1,423	2-room
Dudley.....	99'9"	Wayne.....	1935	CCC	1,746	3-room
Snow Hill.....	86'3"	Greene.....	1934	CCC	1,397	2-room
Everett.....	99'9"	Beaufort.....	1936	CCC	1,410	2-room
Comfort.....	99'9"	Jones.....	1936	CCC	2,001	
Young.....	99'9"	Johnston.....	1936	CCC	1,519	
Earp.....	100'0"	Johnston.....	1936	Private & CCC	1,095	
Greenville.....	99'9"	Pitt.....	1936	CCC	1,574	
Kinston.....	99'9"	Lenoir.....	1937	CCC	1,938	4-room
Dixon.....	120'6"	Onslow.....	1937	CCC	2,459	4-room
Redditt.....	99'9"	Beaufort.....	1936	CCC	1,640	2-room
Deppe.....	120'0"	Onslow.....	1938	CCC	2,478	4-room
Edgecombe.....	93'0"	Edgecombe.....	1932	NCFS	1,029	3-room
Green Cross.....	99'9"	Bertie.....	1934	CCC	1,256	2-room
Woodville.....	80'0"	Bertie.....	1928	NCFS	1,358	2-room
Jackson.....	86'6"	Northampton.....	1934	CCC	1,335	2-room
Thomas.....	93'0"	Hertford.....	1929	NCFS	1,467	2-room
Liles.....	79'6"	Halifax.....	1935	CCC	1,087	2-room
Scotland.....	99'9"	Halifax.....	1934	CCC	1,553	2-room
Swift Creek.....	79'6"	Nash.....	1935	CCC	1,221	2-room
Warren.....	80'0"	Warren.....	1932	NCFS	1,079	2-room
Plymouth.....	99'9"	Washington.....	1936	CCC	1,512	
Foreman.....	99'9"	Martin.....	1936	CCC	1,344	4-room
Camp.....	102'0"	Hertford.....	1928	Private & CCC	1,206	
Hassell.....	99'9"	Martin.....	1936	CCC	1,595	3-room
East Lake.....	120'0"	Dare.....	1938	CCC	3,618	2-room
Palestine.....	60'0"	Cumberland.....	1927	NCFS	1,152	2-room
Cedar Creek.....	99'9"	Cumberland.....	1934	CCC	2,121	1-room
Cameron Hill.....	100'0"	Harnett.....	1938	CCC	2,077	1-room

TABLE C—Continued

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Mamers.....	72'9"	Harnett.....	1934	CCC	\$ 991	2-room
Chadbourn.....	100'0"	Columbus.....	1930	NCFS	1,100	4-room
Nakina.....	100'0"	Columbus.....	1931	NCFS	1,150	
Waccamaw.....	100'0"	Columbus.....	1929	Private	1,200	4-room
Proctorville.....	99'9"	Robeson.....	1934	CCC	1,281	2-room
Pembroke.....	85'0"	Robeson.....	1928	NCFS	1,396	2-room
Parkton.....	99'9"	Robeson.....	1929	NCFS	1,591	2-room
East Robeson.....	99'9"	Robeson.....	1935	CCC	1,715	2-room
Orton.....	80'0"	Brunswick.....	1931	Private & NCFS	1,100	
Shallotte.....	99'9"	Brunswick.....	1935	CCC	2,123	4-room
Bolivia.....	99'9"	Brunswick.....	1929	NCFS	1,556	4-room
Maco.....	99'9"	Brunswick.....	1936	CCC	1,608	4-room
Jones Lake.....	99'9"	Bladen.....	1935	CCC	1,532	4-room
Rose Hill.....	99'9"	Duplin.....	1936	CCC	1,630	4-room
Newkirk.....	99'9"	Sampson.....	1936	CCC	1,424	4-room
Chinquapin.....	99'9"	Pender.....	1936	CCC	1,824	4-room
Bannerman.....	120'0"	Pender.....	1927	CCC	2,534	
Ward's Corner.....	120'0"	Pender.....	1936	CCC	2,000	4-room
Pink Hill.....	99'9"	Duplin.....	1937	CCC	1,811	
Clinton.....	120'0"	Sampson.....	1937	CCC	3,234	4-room
Williams Lake.....	120'0"	Sampson.....	1937	CCC	2,094	4-room
Knightdale.....	120'0"	Wake.....	1938	CCC	2,781	4-room
Hoffman.....	99'9"	Richmond.....	1937	Resettlement Admin.	1,500	3-room
Hamlet.....	99'9"	Richmond.....	1937	Resettlement Admin.	1,500	3-room
Stumpy Point.....	120'0"	Dare.....	1939	CCC	2,597	
Scuppernong.....	120'0"	Washington.....	1939	CCC	2,728	
Glover.....	100'0"	Nash.....	1940	CCC	1,946	
Riegel.....	120'0"	Brunswick.....	1938	CCC	2,788	4-room
Lagoon.....	100'0"	Bladen.....	1937	Resettlement Admin.	1,521	
Rich Mountain.....	40'4"	Transylvania.....	1939	CCC	1,851	House on Tower
Hawshaw Mountain.....	45'9"	Avery.....	1934	CCC	1,041	1-room
Big Dugger.....	60'0"	Watauga.....	1941	NCFS & CCC	1,841	2-room
Rocky Point.....	120'0"	Pender.....	1941	CCC	3,031	
Giddenville.....	120'0"	Sampson.....	1942	CCC	2,840	
Pittsboro.....	100'0"	Chatham.....	1940	CCC	1,830	
Huntersville Mountain.....	52'0"	McDowell.....	1940	CCC	1,724	2-room
Apex.....	100'0"	Wake.....	1940	CCC		
Clarkton.....	120'0"	Bladen.....	1941	CCC	2,246	
Chesapeake.....	120'0"	Gates.....	1942	Private	3,317	
* Phillips Knob.....	45'9"	Yancey.....	1943	NCFS	597	1-room
* Ansonville.....	99'9"	Anson.....	1944	NCFS	2,160	
* Lilesville.....	99'9"	Anson.....	1943	NCFS	1,965	
* Harrisville.....	99'9"	Montgomery.....	1944	NCFS	2,328	
* Winfall.....	99'9"	Perquimans.....	1944	NCFS & USFS	2,625	
* South Mills.....	99'9"	Pasquotank.....	1944	NCFS & USFS	2,625	

TOTAL TOWERS—98

TOTAL HOUSES—70

* Towers erected this biennium.

TABLE C-1

FEDERAL TOWERS

The following Federal lookout towers, erected primarily for protection of Federally-owned lands, also overlook areas under protection by the State, and have served to supplement the State's tower system in locating fires on such areas:

UNITED STATES FOREST SERVICE TOWERS

Big Stomp in Cherokee County
 Panther Knob in Cherokee County
 Hayoe Bald in Graham County
 Teyahalee in Graham County
 Wayah Bald in Macon County
 Standing Indian in Macon County
 Wesser Bald in Macon County
 Satulah Mountain in Macon County
 Yellow Mountain in Macon County
 Cowee Bald in Jackson
 Rabun Bald in North Georgia
 Rocky Top in North Georgia
 Hightop in Haywood County
 Sutton Mountain in Haywood County
 Pilot Mountain in Transylvania County
 Ferrin Knob in Buncombe County
 Little Snowball in Buncombe County
 Woods Knob in McDowell County
 Green Knob in McDowell County
 Chestnut Mountain in Avery County
 Sand Mountain in Caldwell County
 Rocky Knob in Caldwell County
 Buck Mountain in Montgomery County
 Croatan in Craven County
 Harlowe in Craven County
 Island Creek in Jones County
 Black Swamp in Jones County
 Pelletier in Carteret County
 Newport in Carteret County
 Frying Pan Mountain in Haywood County
 Rich Mountain in Madison County
 Duckett Top in Madison County
 Devils Nest in Mitchell County
 Table Rock in Burke County

NATIONAL PARK SERVICE TOWERS

Shuchstack in Swain County
 High Rocks in Swain County
 Frye Mountain in Swain County (in cooperation with Indian Service)
 Barnett Knob in Swain County (in cooperation with Indian Service)
 Mount Sterling in Haywood County
 Spruce Mountain in Haywood County
 White Rock in Haywood County

UNITED STATES INDIAN SERVICE TOWERS

Lickstone Mountain in Jackson County

State Forest Service Communications: The fire-detection and reporting system of the State Forest Service at the close of the biennium included the following mileage of State-owned telephone lines. These lines connect lookout towers with Forest Wardens and other towers, or with commercial telephone lines, or both. Practically all our telephone lines, are on poles of creosoted pine, and practically all are metallic circuit (2-wire) line.

<i>Forest Service District</i>	<i>Total Mileage of Line</i>
No. 1—Asheville.....	85.4
No. 2—Lenoir.....	167.9
No. 3—Rockingham.....	84.8
No. 4—New Bern.....	36.4
No. 5—Rocky Mount.....	36.5
No. 6—Fayetteville.....	511.7
No. 7—Elizabeth City.....	34.2
Total for State.....	956.9

It will be noted that the total is about 34 miles less than at the same period two years ago. This reduction represents dismantling of several short lines no longer needed, due principally to new commercial telephone facilities made available.

The NCFS has not yet made an actual start in the use of radio for Forest Service communications. Such start, however, is anticipated for the fiscal year 1944-45 in connection with our Dismal Swamp critical area organization. During fiscal year 1943-44 preliminary plans and authorizations were laid and obtained, and actual operation was delayed only by inability to obtain the equipment on order through the U. S. Forest Service. It is our belief that the use of radio offers a very wide and highly important field in communications work, probably awaiting only the end of the war for the beginning of actual operations on an increasing scale. Our present plan, subject, of course, to complete revision in the light of possible technological developments, foresees the use of radio for communication between County Forest Wardens and lookout towers largely on a County unit basis. We do not anticipate much use of more powerful equipment on a District or State-wide basis.

Other Permanent Improvements: The State Forest Service operated at the end of the biennium 98 lookout towers. As is indicated in Table C six of them were erected during the biennium. The one in Yancey County represents erection there of a tower dismantled elsewhere and moved to this site. The three in Anson and Montgomery counties represent three of the five CCC towers left on the ground and un-erected at the time of completion of the CCC program (the other two will be covered in the report for the next biennium). The towers in Perquimans and Pasquotank counties represent two acquired and erected principally in connection with our Great Dismal Swamp Critical Area program.

Two additional tower houses and one Ranger's residence were constructed during the biennium. One of these tower houses is a small one-room cabin at the Phillips Knob Tower, the other one being a small two-room cabin at Big Dugger Tower. The Ranger's residence is a small four-room house located near the Waccamaw Tower

which is headquarters for the Waccamaw Association. Other building construction during the period was limited to two or three minor additions to existing warehouse or towerhouse buildings; such limitation resulted, of course, from the scarcity of building materials and labor as a phase of the war program.

TABLE D
LIST OF PRINCIPAL ITEMS OF FIRE FIGHTING EQUIPMENT

Items of Equipment	Purchased During Biennium	Total on Hand Date of This Report
Automobiles.....	8	17
Pickup Trucks (2 from CCC).....	*14	*75
1½ Ton Trucks (8 from CCC).....	10	**12
Tractor Truck-Trailer Units.....	4	4
Tractors.....	5	9
Road Machines.....		1
Fire Line Plows.....	9	12
Power Pumps.....	2	2
Pumps, Knapsack.....	760	2,872
Rakes, Fire.....	642	4,734
Axes.....	52	314
Hooks, Brush.....	312	1,145
Shovels.....	133	396
Swatters.....	282	1,086
Lanterns.....	30	41
Chain Hoist.....	3	3
Electric Drills.....	4	4
Bench Grinders.....	7	7
Bullgraders.....	1	1
Winches (Tower Erection).....	2	2

* Three additional pickup trucks purchased during the biennium with Federal Funds also on hand and in use but since they are, Federal Property and will remain so, they are not included in above list.

** Two additional 1½ ton trucks, that are Army Property, also on hand and in use but not included in above list.

The Department's long-time plan for adequate State-wide forest fire control on all non-Federal forest lands calls for a system of approximately 130 State-owned lookout towers and possibly 1,000 miles of telephone line, together, of course, with a complete network of radio communication. As has been consistently done in the past, plans for lookout towers, telephone lines and radio will be integrated and co-ordinated with those of such Federal agencies as the U. S. Forest Service and the National Park Service who conduct similar programs in protection of Federal forest lands within the State.

Fire Fighting Equipment: Obviously, the acquisition of fire fighting equipment of all sorts during the two war years of this biennium has been quite difficult. Even sufficient replacements to maintain the stock theretofore on hand was difficult. The end of the biennium, accordingly, found our general equipment situation, with particular regard to motor vehicles, not very good. It was something, however, over which we had no control, and it is to be remembered that we fared much better than most other State agencies, and probably much better than many Federal agencies. It is certainly true that the war, and its resulting emphasis on the importance of forest products, added a great deal of prestige to the fire control program as one of prime public importance.

Table D indicates the acquisition of four truck tractor-trailer units during the biennium. These are the units which are essential in transporting crawler tractors and fire line plows for fire fighting and presuppression operations in our eastern Districts. Actually, only one of these units was acquired during the biennium, that being a second-hand unit we were able to purchase in June, 1943 (after our application to purchase three new such units had been refused by the War Production Board). The other three units, following later approval of their purchase by the War Production Board, were contracted and paid for during fiscal year 1943-44 but not actually received until October of 1944. They are accordingly included in the list.

We were fortunate in being able to purchase several new crawler tractors and fire line plows during the biennium, as well as in purchasing from Army surplus several discarded fire line plows (all of which are also indicated in Table D).

In common with many other State and Federal agencies we are looking forward to possible acquisition of considerable surplus Army and Navy equipment, probably at the end of the European War and certainly at the end of the War in the Pacific. This equipment may possibly include tractors, trucks, passenger cars (where needed), radio equipment, and tools, and probably some specialized Military equipment which can be easily converted to our use in fire fighting. In the case of much of our needed equipment, such as motor vehicles in particular, it is probable that these Military surpluses will represent our first available source of supply; and that must await further improvement in the war picture.

Accomplishments: The Progress Charts in this and the preceding Biennial Reports show the highly gratifying increase in the direct State appropriation for Fire Control from about \$35,000 annually as of June 30, 1941 to about \$103,000 annually as of June 30, 1944. We feel that this accomplishment reflects confidence of the people of the State and of their Legislature in the soundness and importance of the Department's Forest Fire Control program. As is pointed out elsewhere, such increases in the key State appropriation have permitted and actually caused accompanying increases in County and Federal appropriations.

During the period preceding this biennium and since the beginning of our acquisition of State-owned trucks for County Forest Wardens, the operation of those trucks in so far as gasoline, oil, and minor repairs were concerned, was at the personal expense of the individual County Forest Warden. During this biennium, these operating costs were gradually and largely assumed by the Department. As of early in fiscal year 1944-45, this assumption of operating costs by the Department was made complete, as will be pointed out in the next biennial report.

At the Department's request the General Assembly of 1943 amended Section 6136 of the Consolidated Statutes of North Carolina. The amendment consisted of striking out the words "to meet an emergency," thereby permitting the County Commissioners of the several counties to make appropriations in cooperation with this Department for support of the forest protection program on a normal fiscal year basis.

When the situation with regard to personnel and equipment due to the war effort first began to seem acute it appeared certain that the State Forest Service would be making commendable progress for the balance of the war period if it were able merely to "hold its own." It is felt that both tangible and intangible results obtained during the period of this biennium, and particularly the results indicated in tables in this report, justify a feeling that possibly this two-year program represents a definite accomplishment despite severe handicaps.

Forest Fire Statistics: Fire statistics for the past four fiscal years are given in Table E. In analyzing any such table, it is, of course, necessary to bear in mind the following factors:

1. The funds available to do the job, as against the funds known to be required to do an adequate job.
2. The fact that climatic factors such as the distribution and amount of rainfall, and human factors such as the distribution and intensity of logging operations, establishment of Military camps and maneuver areas, etc., have a continuous bearing upon forest fire control. These variable factors cannot be estimated except in the light of past experience, and therefore without an adequate organization it must be expected that results obtained in forest fire control will vary far more widely than would be the case were such adequate resources available.

The fire season for the fiscal year 1940-41 was one of the worst experienced in this State for several years, due to abnormally dry weather; and the fiscal year of 1941-42 was only a little better, the Fall of 1941 being unusually dry. Weather Bureau reports for the State as a whole show that 1941 ended with a rainfall of 11 inches below normal. With such a deficiency in rainfall to begin with, the Spring of 1942 was abnormally dry. The fiscal year of 1942-43 was about normal though the Fall of 1943 was also abnormally dry. This resulted in low ground water levels, causing the swamp and peat soil areas of the eastern counties to experience bad ground-burning conditions. The Spring of 1944 was fairly normal until the months of May and June when it again became abnormally dry with low ground water levels and the usual high and dry winds that accompany such abnormally dry weather.

The table of statistics shows graphically the loss sustained each year from forest fires, even on areas given the existing measure of State Protection. The Department feels that adequate protection, as indicated in the footnote to the foregoing Progress Chart, on page 56 would very materially reduce this annual and wasteful loss.

Conclusion: As is indicated previously in this report, the attainment of the goal of State-wide and adequate forest fire control is still in the future. It is most encouraging to note the greatly increased support of the Department's program apparent during the past several years on the part of the public in general and of the General Assembly, the forest products industries, and the N. C. Forestry Association in particular. There is every reason to believe in the further growth of this support, so long as the Department's program remains sound; and it might be said that at the end of this biennium the goal of adequate State-wide fire control was for the first time really in sight. It is both hoped and expected that the period of the coming biennium will witness the end of the war and the necessary readjustments to a peacetime program. If public sentiment and the accomplishments of the past several years are a proper gage, it may be confidently expected that the Department's forestry program, of which Forest Fire Control is an important part, will suffer little, if at all, from the retrenchment program following the war period.

The Department's close cooperation with Federal agencies interested in the control of fire on Federal lands has continued to be highly satisfactory. These cooperative endeavors have included work with several branches of the Armed Forces, particularly as a result of our intensified protection on Critical Defense Areas. Nearly all of this work with Army and Navy units has been without any written agreement basis, but has been eminently and mutually satisfactory.

TABLE E

FOREST FIRE STATISTICS FOR STATE-PROTECTED AREAS
BY FISCAL YEARS

	1940-1941	1941-1942	1942-1943	1943-1944
Area Under Protection—Acres.....	11,702,513	11,728,157	12,151,958	12,515,116
NUMBER FIRES BY CLASSES:				
A—Under ¼ acre.....	282	258	125	135
B—½ to 10 acres.....	1,841	1,757	1,029	1,202
C—11 to 100 acres.....	2,022	1,771	1,250	1,419
D—101 to 500 acres.....	495	449	267	343
E—Over 500 acres.....	344	311	136	157
TOTAL.....	4,984	4,546	2,807	3,256
CAUSES OF FIRES:				
Brush Burning.....	865	921	188	510
Hunters, Fishermen, Campers.....	500	579	638	593
Railroads.....	230	254	565	502
Lumbering.....	154	123	26	45
Incendiary.....	1,210	959	65	78
Smokers.....	1,610	1,306	152	173
Lightning.....	36	24	905	1,084
Miscellaneous.....	379	380	268	271
Unknown.....				
TOTAL.....	4,984	4,546	2,807	3,256
*AREA BURNED—ACRES:				
Merchantable Timber.....	152,955	159,501	55,071	56,473
Reproduction.....	419,481	356,889	137,030	135,286
Open Grass Land.....	142,933	58,240	24,293	25,720
TOTAL.....	715,369	574,630	216,934	217,479
Average Area Per Fire, Acres.....	143	126	77	66
Per Cent of Protected Area Burned.....	6.10%	4.81%	1.79%	1.73%
DAMAGE:				
Merchantable Timber.....	\$ 527,978	\$ 481,593	\$ 170,691	\$ 145,942
Reproduction.....	510,339	586,302	218,066	174,942
Other.....	41,824	77,125	24,947	74,735
TOTAL.....	\$ 1,080,141	\$ 1,145,020	\$ 413,704	\$ 395,625
Average Damage Per Fire.....	\$ 217	\$ 252	\$ 147	\$ 121
Total Fire Fighting Costs (Non-Salaried Personnel).....	21,608	22,300	10,375	13,325
Average Fire Fighting Costs Per Fire.....	4.34	4.03	3.82	4.09
LAW ENFORCEMENT:				
Number of Prosecutions.....	347	373	216	183
Number of Convictions.....	313	310	206	170
Court Costs and Fines.....	\$ 3,830	\$ 3,265	\$ 2,491	\$ 2,562
RESPONSIBLE PARTIES OTHERWISE HANDLED:				
Number Parties Billed for FF Costs.....	393	337	192	203
Number Making Payment.....	382	301	184	193
Amount Received.....	\$ 1,870	\$ 1,677	\$ 1,032	\$ 1,189

TABLE E—Continued

	1940-1941	1941-1942	1942-1943	1943-1944
FF COST BY LANDOWNERS:				
Number of Parties Billed.....	12	5	26	11
Number Making Payment.....	11	5	26	11
Amount Received.....	\$ 121	\$ 69	\$ 232	\$ 45
Number of Burning Permits Issued.....	40,027	34,767	29,626	26,912
WARDEN ACTIVITIES:				
Number of Hours Worked.....	310,381	289,679	293,036	349,598
Miles Travelled, Car, Foot, Horse.....	756,723	735,546	677,209	749,826
Number of People Interviewed.....	20,388	25,412	19,778	21,773
Number of Sawmills Visited.....	1,154	667	624	890
Number of Schools Visited.....	171	111	187	579

TABLE F

COMPARISON OF STATE-PROTECTED AREAS AND UNPROTECTED AREAS (BY CALENDAR YEARS)

Federal Lands Protected by Federal Agencies NOT Included	State-Protected Forest Area		Unprotected Forest Area*		Totals for State	
	1942	1943	1942	1943	1942	1943
Forest Area in Acres.....	11,874,627	12,410,785	5,055,099	4,518,941	16,929,726	16,929,726
Number of Fires Reported.....	3,599	3,778	549	448	4,148	4,226
Area Burned—Acres.....	513,082	302,655	264,288	148,760	777,370	451,415
Size of Average Fire Acres.....	142.6	80.11	481.39	332.07	187.40	106.81
Per Cent of Total Forest Area Burned.....	4.32	2.44	5.22	3.29	4.59	2.66
Damage Done by Fires.....	\$ 1,020,165	\$ 621,459	\$ 1,070,083	\$ 375,998	\$ 2,090,248	\$ 997,457

* Figures on fires, damage, etc., for the unprotected areas are obtained by an annual survey in such areas and are, of necessity, only estimates.

NOTE: In connection with the comparisons in the above table, it should be remembered that the State Forest Service has purposely extended its protection activities first to the areas of highest fire hazard and greatest need (the Counties in the Mountain and Coastal Plain regions). This policy will continue; consequently, it is to be expected that as these "bad fire areas" are brought under protection the per cent of area burned in the *unprotected* areas (as well as the total acreage burned) will decrease in relation to the same figures for the *protected* areas.

STATE PARKS AND STATE RECREATION AREAS

During this biennial period, the State Parks of North Carolina have been operated on a limited basis. This curtailment of effort during the war is well justified and sound. The absence of the men and the lack of gasoline and tires have curtailed the public use of all State parks and recreation areas.

The Branch of State Parks, in contributing to the war effort, has turned over one entire park to the Federal government for maneuvers of the armed forces. Some parks have been used for special training programs while others have been used for recreational purposes.

During the past two years, the State park office personnel has gone through a complete change. Evelyn Sanders succeeded Dorothy Vereen as Senior Stenographer-Clerk on October 17, 1942. On September 30, 1942, Junior Stenographer-Clerk Betty Ellington's services were terminated by her resignation. Betty Tudor and later Mrs. H. D. Glisson, Jr., held this position, and on January 20, 1944, Hattie Barnes, the incumbent, was appointed.

The resignation of L. L. Miller, the leave of absence granted Thomas W. Morse, and the employment of their substitutes, Harold G. Bolick and Rubee J. Pearse, are referred to in the introduction of the Division's report.

Crabtree Creek State Park: Crabtree Creek State Park is located in Wake County on Highway 70-A, midway between Raleigh and Durham, and was formerly known as Crabtree Creek Recreational Demonstration Area. This park contains 5,088 acres and was purchased and developed by the Federal government. The United States of America, through the Secretary of the Interior, has released to the State of North Carolina all right and title to Crabtree Creek Recreational Demonstration Area. The State accepted this area on April 6, 1943, with the equipment stored on the area, consisting of two trucks, tractor, grader, mower, centrifugal pump, office furniture, fire fighting equipment, and tools.

The deed made the condition that the State of North Carolina shall use the property exclusively for public park, recreational, and conservation purposes, and that the United States of America assumes no obligation for the maintenance or operation after the acceptance of this deed.

The title and right of possession of this area, together with the improvement and equipment shall revert to the United States of America upon a finding by the Secretary of the Interior, after notice to the State of North Carolina and after an opportunity for a hearing, that the State has not complied with the conditions during a period of more than three years.

The Branch of State Parks has operated the three group camps for white use and one group camp for negro use and limited picnicking facilities for general public use. The white camps were leased by the Girl Scouts, Occaneechee Council of the Boy Scouts and the Durham YMCA during the summers of this biennium. The various negro organizations under the sponsorship of the Merrick-Moore Memorial Park Association leased the negro camp for Girl and Boy Scout organizations. The Civilian Conservation Corps camp buildings and the group camps, out of camping season, were used as a rest camp for the British sailors.

In July and August of 1943, several regiments from Camp Butner were in field training at Crabtree Creek State Park. During this period, approximately 7,000 soldiers and 500 vehicles used the area.

E. B. Stone, Jr., was appointed as Superintendent but remained only one month, resigning to return to the National Park Service. E. M. Taylor was appointed as Park Ranger on May 4, 1943 and Archie C. King was appointed as Junior Refuge

Warden on July 16, 1943, resigning as of June 17, 1944. On May 1, 1944, J. W. Kistler transferred from the Division of Game and Inland Fisheries to become Park Superintendent.

Three interior tracts of land have been acquired at Crabtree Creek State Park since the State took possession. On September 23, 1943, the State purchased the George C. Dickinson tract of 43.5 acres, the Maggie Carpenter tract of 48.3 acres on May 4, 1944 and on May 31, 1944, 29.1 acres were purchased from the Boy Scouts Council. The State has an option on the J. L. Teal tract of 16 acres which is now in the process of being acquired.

In the fall of 1943, a survey was completed of Crabtree Creek State Park and all the outside boundaries were painted and posted.

Hanging Rock State Park: Hanging Rock State Park is located in Stokes County, four miles northeast of Danbury. The 3,863 acres contain rugged mountainous terrain, including Hanging Rock, part of Moore's Knob, and Cook's Wall. The recreational facilities provided in the park are a beautiful twelve-acre lake, a large modern bathhouse, a protected swimming beach, picnic grounds, trails, and parking areas. The park was operated on a very limited basis for picnics, with hiking and camping for small groups. Operation of the park for public use has been handicapped by the need of a satisfactory entrance road.

Hanging Rock State Park was used for several months for the field training of students of the Army Signal Corps School of Winston-Salem. It was also used by medical units from Camp Butner for special field training.

George Sanders was appointed as Park Ranger as of March 16, 1943, resigned on April 16, 1944. After his leave, Jesse Long was given complete charge until June 28, 1944 when he was granted a leave of absence to enter the United States Navy.

No additional land has been acquired, but before full development and public use of this park can be reached, it will be necessary to purchase land for an entrance park road right-of-way, and acquire one or more interior holdings. A complete survey of the park was made in 1943, and all boundaries were marked.

Morrow Mountain State Park: Morrow Mountain State Park in Stanly County is seven miles northeast of Albemarle. The park was operated through the two successive seasons for hiking, picnics, camping, and special arrangements were made to permit Boy Scouts and the Future Farmers of America to camp near the swimming pool and use the kitchen of the Administration Building. The public swimming pool was open for a limited season. The Administration Building was completed by finishing the floor on the entrance porch.

This park was used by units from Camp Sutton and Camp Butner for bivouacs and field training. Several of these units were permitted to use the swimming pool both for recreational purposes and for teaching swimming and water safety.

M. R. Dry, Park Ranger, resigned on October 27, 1943, but two weeks before his services terminated, the Department appointed Grady L. Mills to this position.

Mount Mitchell State Park: Mount Mitchell State Park is located in the Black Mountains of Yancey County. Mount Mitchell, its central feature, towering 6,684 feet above sea level, is the highest peak in the Eastern United States. The part of the old Perley road between the Blue Ridge Parkway and Mount Mitchell is still the best approach for vehicles. The new proposed approach road will place the park only four and a half miles from the Blue Ridge Parkway. The complete Civilian Conservation Corps camp, evacuated in November 1941, has been transferred to the Department of Conservation and Development and is ready to house any

construction workers that may be assigned to work on the several uncompleted projects.

Mount Mitchell State Park has been kept open to visitors, Ed Wilson still faithfully maintaining his supervision, but due to gasoline and tire rationing, few people have traveled over the mountain road to the park. Army units used the observation tower and the top of Mount Mitchell for secret training and experiments with radar equipment.

On account of urgent war demands insistent requests were made by some local parties interested in mica mining that they be allowed to open up prospects on the park. The matter was investigated on the ground in October, 1942 by a representative committee composed as follows: Jesse McKinney, representing the Federal War Minerals Agency, Dr. Jasper L. Stuckey, State Geologist, C. P. Rogers, President, Feldspar Milling Company, a member of the Board, and Thomas W. Morse, Superintendent of State Parks. This committee agreed that the mining of mica was unwise and unnecessary since better and more easily accessible prospects were available in the region. On April 6, 1943 the following policy was adopted by the Board with regard to mining operations in the State parks:

1. Mining operations will not be undertaken in Mount Mitchell State Park or any other State park until it is definitely shown that it is necessary to do so for war purposes. That is, until it is a known fact that there is such a shortage of the material to be mined that deposits on the State parks must be mined to overcome the shortage.

2. If it becomes necessary for war purposes to carry on mining operations in Mount Mitchell or any other State park, the mining will be done by the Department.

No additional land has been purchased for Mount Mitchell State Park this biennium. Approximately 20 acres at the southern boundary are essential toward the development and protection of the park.

Pettigrew State Park is located on the portions of two fine old plantations, "Bonarva" and "Somerset," which flourished from the late seventeen hundreds until the Civil War. The park includes the State-owned Lake Phelps, 16,600 acres in extent, and some two hundred acres of land leased to the State by the Federal government for a period of 99 years.

Pettigrew State Park has been open to the public for visiting the old Collins House and the four-story barn near by. The lake has been open in season for fishing and good catches have been reported. No improvements have been made on the park during this period, although minor repairs have been made on the house.

A water level survey was made in 1943 at Pettigrew State Park of the entire length of the lake shore to determine the necessary elevation of the locks leading into the canals.

Jones Lake Recreational Area is part of the Bladen Lakes Land Use Area, which is operated by the Forestry Division as a State Forest. This Recreational Area is operated for negro use and includes State-owned Jones Lake with a well-equipped bathhouse, beach, water area for swimming, boats, picnic grounds, and ample parking areas. It has been kept open for picnics and some fishing, with a Special Permit for Boy Scouts to camp. Recreational programs for negro soldiers were arranged at Jones Lake. The Anti-Aircraft Artillery School at Camp Davis conducted special training programs both day and night on the area.

Evelyn Smith, Junior Stenographer-Clerk of the Bladen Lakes Land Use Area, under the administration of the State parks, resigned as of March 1, 1943 and Christine Peters was appointed to this position.

Singletary Lake Group Camp, also a part of the Bladen Lakes Land Use Area, is located on State-owned Singletary Lake. The Group Camp is operated for such organizations as Boy Scouts and religious groups which have leased the camp for the summer seasons of this biennium. This area was also used by the Anti-Aircraft School from Camp Davis for special training programs.

Cape Hatteras (Phipps Memorial) State Park is approximately 30 miles south of Oregon Inlet in Dare County. The Park is in the area proposed as the Cape Hatteras National Seashore. This Park has had very limited use this biennium, and the five cabins in the park are leased to the Coast Guard personnel.

Fort Macon State Park occupies the extreme eastern end of Bogue Island in Carteret County, and extends some two miles westward from Beaufort Inlet. The Park has been leased to the United States Army for the duration of the war. Many changes have undoubtedly been made there, but the Army is under agreement to restore this park as far as possible to its former condition.

Town Creek Indian Mound was donated to the State several years ago by Mr. and Mrs. L. D. Frutchey, on the banks of Little River, one mile north of the Richmond County line. The excavation and research work at this Indian Mound was suspended in July, 1942 when Joffre L. Coe, State Supervisor of the Archeological Survey Project, entered the armed services.

Rendezvous Mountain State Park in Wilkes County, 15 miles northwest of North Wilkesboro, has an area of 142 acres. It was donated to the State some years ago by Judge and Mrs. T. B. Finley, so far has been used chiefly as a site for a lookout tower. No recreational facilities have been provided at this park.

State Lakes: There are seven State-owned lakes under the administration of this Department: Lake Phelps in Washington and Tyrrell counties; Jones, Singletary, Salters, Black, and White Lakes in Bladen County; and Lake Waccamaw, in Columbus County. Jones, Singletary, and Phelps are administered as parts of existing State parks or recreational areas. Salters Lake is administered as part of the Bladen Lakes State Forest. Black Lake is near the Bladen Lakes Land Use Area and has not as yet presented any difficult problems.

The Department owns no land around White Lake or Lake Waccamaw, thus the administration of these two lakes is somewhat of a problem. During the summer months a Lake Warden has been employed at White Lake to aid in reducing some of the objectionable practices. M. H. McQueen, Lake Warden, resigned as of May 1, 1944, and due to the scarcity of trained men, he had not been replaced before June 30, 1944. A serious leak occurred at the east end of Lake Waccamaw dam which was constructed under instructions of the General Assembly of 1941, Chapter 340. Temporary repairs by the branch of State Parks were completed on June 24, 1944. However, partly owing to the nature of the site and partly to the fact that unknown parties were evidently tampering with the remedies already put in, there is still a serious leak.

Postwar Park Plans: Postwar park construction is planned to complete the program that was stopped by the war. These plans include vacation cabins at Morrow Mountain and Hanging Rock State Parks, a hotel at Mount Mitchell State Park; also, the restoration of the unique Collins barn and furniture and equipment for the restored Collins House at Lake Phelps. Plans are being made toward the construction of service buildings, electrical installation and surfacing roads in some of the parks. There is also a demand for the purchase of boats and canoes for the

State-owned lakes. The Civilian Conservation Corps camps, at Crabtree Creek State Park, Hanging Rock State Park, and Mount Mitchell State Park could be made available as construction camps if it seems necessary and advisable to use them for such purposes.

Regarding land acquisition, the lands at the entrance to Mount Mitchell State Park and Hanging Rock State Park should be immediately purchased. Additional surrounding tracts should be purchased at Hanging Rock to include all of Moore's Knob and some adjoining property. Under Chapter 118 of the Public Laws of 1941, the Department was given the right of eminent domain in acquiring land for State parks and forests. Stokes County was exempted from the provisions of this Act, but it is hoped that this exemption can be removed and that the Act will apply to Stokes as well as the other 99 counties in the State.

Proposed New State Parks: An offer of Lionel Weil of Goldsboro to donate to the State, land held by him under option, including the Cliffs of the Neuse in Wayne County, was made to this Department in April, 1944. This Division was naturally greatly interested, so on June 7, representatives of the Division met a delegation of around one hundred citizens from Goldsboro and surrounding region at this scenic spot on the banks of the Neuse, sixteen miles south of Goldsboro.

Mr. Weil and his associates in this movement expressed themselves as willing to acquire additional land for the State if deemed advisable. The Department representatives were very favorably impressed by the possibilities of the project and acceptance of this offer will be recommended to the Board in July.

The recommendation that a State Park and State Forest be established in the South Mountains of Burke and adjoining counties was given general approval at the semi-annual meeting of the Board of Conservation and Development January 27, 1944. Citizens and officials of the region are much interested in this project. It is hoped that the General Assembly will provide means for the inauguration of this worthwhile project.

FOREST MANAGEMENT

Assistance and advice to private woodland owners continued to be furnished to the best of the ability of a reduced personnel. Roger D. Huff, loaned to this Department by the U. S. Forest Service, was called upon August 20, 1943 to assume new duties in the T. P. W. P. (Timber Production War Project). P. A. Griffiths assumed the responsibility of Huff's work and carried on, devoting 40 to 50 per cent of his time to private forest management.

Due to the increased demand for timber, efforts have been concentrated on encouraging owners of timber to market that which is mature and ready to cut. Whenever possible, these owners are made acquainted with such cutting methods as will retain their lands in a good state of production and are advised on those methods of marketing timber which will return them the greatest profit.

During the biennium, 35,797 acres of woodland situated in 32 counties, have been examined and recommendations made to 53 owners for handling their property according to good forestry practices. In addition, much time has been spent in assisting owners whose tracts have already been examined and who have started managing their woodlands according to our recommendations. Aid has been furnished them relative to marking timber, fire control problems and marketing their forest products. The lack of foresters and trained woodsmen, who might train landowners or their available agents or employees to do their forestry work, to mark timber and supervise sales, as well as the absence of such responsible employees who might be trained to do their forestry work, is in many cases hindering the progress of private forestry.

Vocational Schools. In keeping with the policy established some years ago, all the Vocational Agricultural teachers were again contacted by mail in the spring of 1943 and 1944, offering them 50 seedlings free. These trees were to be planted on the school forest as part of an Arbor Day observance. The response, while small, is encouraging, some 82 schools planting 5,240 tree seedlings during the biennium.

CLAYTON NURSERY

This nursery, which is located approximately one mile west of Clayton on highway 70 in Johnston County, has continued under the same supervision as heretofore. Moody Clemmons is in charge, assisted by two men who are employed on a monthly basis. Negro women are transported from Clayton to do the weeding and lighter nursery work when the need becomes necessary. The scarcity of labor on farms has materially reduced the demand for forest seedlings, so that at present this nursery is being operated on a much reduced scale.

It is highly important to keep those areas, not in seedling production, in good tilth, so a variety of cover crops have been used. Soy beans, vetch, winter rye and cro-tolaria have given good results.

A new chemical weed killer called "Uramon" was tested on several plots at this nursery in the fall of 1942. O. L. Jensen, representative of the DuPont Corporation conducted these experiments. Further trial will be necessary before any decision as to its general value can be reached.

The CCC barracks buildings, which were turned over to the Coast Guard by the Army were taken down and moved in August 1943. In response to our request the latrine and First-aid buildings were turned over to this Department intact. The First-aid building has been renovated and is now occupied by one of our men and his family. At present the old latrine building, seriously dismantled, is being used for storage.

One of the chief losses which the nursery has felt by the going out of the CCC is that of tree seed collection. Fortunately we have been able to obtain some seed from Archie F. McCoy of Burgaw, N. C., while a little was collected on the Bladen Lakes State Forest by our own force.

Cork Oak. As a result of the second interference with the importation of cork in twenty-five years on account of war, the Crown Cork and Seal Company of Baltimore, Md., instituted a program of cork oak growing in many states. In the fall of 1942 this Department was invited to participate in this program. Feeling that this might prove a worthwhile experiment the Department entered into the arrangement and the company sent its first shipment of 250 pounds of acorns from California in December 1942. Due to the sprouted condition of these acorns they were immediately planted at the Clayton nursery and the Bladen Lakes State Forest. From the acorns planted at the Clayton nursery some 8,000 cork oak seedlings were raised and distributed free of charge, to cooperators throughout the State. One hundred and seventy parties planted these seedlings to test their possibilities. In the spring of 1943 it was decided to try distributing the acorns and an additional 50 pounds was received for this purpose and 114 persons were supplied. In the spring of 1944, 100 additional pounds of cork oak acorns were planted at the Clayton nursery and some 3,000 more seedlings are ready for distribution. A shipment of 1,000 pounds of acorns from Spain was also received in the spring of 1944 but the seed evidently lost its viability, being so long in transit, as none of it germinated. All expenses in the raising and distributing these seedlings and acorns have been borne by the company. It is much too early to predict the outcome of these plantings, but inspections to date are not encouraging.

CRAB CREEK NURSERY

This nursery is located 10 miles west of Hendersonville on the narrow bottomlands of Crab Creek in Henderson County. While the site and soil are especially adapted to the raising of white pine, and most of our production is of this species, yellow poplar and black locust are also raised with good results. Unlike the four southern pines, white pine requires two years before it is large enough for forest planting. Since wartime labor shortage has greatly reduced the demand for forest planting a surplus of stock is on hand as three and four year old seedlings.

At the request of the Supervisor of the Pisgah National Forest several pounds of red spruce seed furnished by him were sown in 1941 with very little care after the first summer. In the spring of 1944, some 26,000 three-year old red spruce seedlings were turned over to the U. S. Forest Service for planting in North Carolina. This experiment shows that red spruce, a tree restricted to the high mountains in this State, can be produced at this nursery so more will be raised in the future.

Molt W. Hensley was employed to supervise this nursery in April 1942, when P. A. Griffiths was assigned to the Raleigh office. He continued in this supervisory position until March 1943 when he resigned because of failing health. Pelzie Hamilton, a near neighbor, has been caretaker looking after the weeding and maintenance ever since. A number of white women from surrounding farms have offered their services and have been employed to do the weeding and lighter nursery work. This arrangement has proved fairly satisfactory, but with increased nursery production in the postwar period, close technical supervision will be needed.

Land. For sometime it has been realized that an entrance from the CCC road through the back part of the Crab Creek nursery would be a necessity should a forest fire threaten this property. This need was greatly emphasized, when during

the spring forest fire season of 1943 a large destructive forest fire threatened this nursery. The following tracts, therefore, have been purchased between the south boundary of the nursery and the CCC road at a uniform price of \$20.00 per acre:

Name	Acreage	Date of Deed
Osteen Sisters (Janie, Lovida, and Lena).....	15 acres	Aug. 14, 1943
A. J. Henderson.....	23.5 acres	Sept. 14, 1943
Jeanette F. Carson.....	22.5 acres	Sept. 24, 1943
M. K. Cox.....	51 acres	May 9, 1944

These newly acquired tracts will give better access for fire control and trespass prevention and will furnish much needed areas for demonstration of various types and methods of planting.

DISTRIBUTION OF FOREST TREE SEEDLINGS BY SPECIES

Species	1940-41	1941-42	1942-43	1943-44
Loblolly Pine.....	1,925,540	1,015,975	696,400	178,950
Shortleaf Pine.....	400,150	155,425	75,500	48,325
Longleaf Pine.....	714,090	187,350	116,200	92,875
Slash Pine.....	167,080	187,000	18,000	17,200
Black Locust.....	176,380	48,200	24,900	7,000
Tulip Poplar.....	81,700	34,500	13,800	15,000
Black Walnut.....	7,500	500		2,100
Miscellaneous.....	37,220	1,500	4,700	
Cypress.....	14,750	2,000	4,000	
Red Cedar.....	29,020	80,250		3,600
White Pine.....	316,550	119,500	77,500	42,500
Spruce.....				26,000
Cork Oak.....				7,600
Hybrid.....				1,500
TOTALS.....	3,869,980	1,832,200	1,031,000	442,510

DISTRIBUTION OF FOREST TREE SEEDLINGS BY CLASS OF COOPERATORS

Class of Cooperators	Biennium 1942-44		Total 1926-44	
	Number of Cooperators	Number of Trees	Number of Cooperators	Number of Trees
Farmers.....	363	1,102,825	3,535	10,072,960
Companies.....	6	143,600	79	2,458,794
Schools.....	6	121,185	282	1,287,654
State.....	2	63,500	70	176,594
Boy Scouts.....			30	14,680
Clubs.....	1	1,000	2,477	158,623
Municipalities.....			12	196,674
Soil Conservation Service.....			2	3,697,040
Others.....			35	1,383,486
U. S. Forest Service.....			5	1,079,040
Federal.....	4	42,000	4	42,000
TOTALS.....	382	1,473,510	6,531	20,567,545

BLADEN LAKES STATE FOREST

This Federally owned but State operated forest of approximately 35,000 acres is situated in the northern part of Bladen County northeast of the Cape Fear River. Three natural lakes, Jones, Singletary and Salters, the property of the State, are included in this forest boundary. Jones and Singletary lakes have recreational facilities, while Salters Lake is to remain in its natural condition for study, and has been closed to fishing upon the advice of the Biologist of the Game and Inland Fisheries Division of this Department.

Area Forester Frank J. Miller, is in charge of this Forest and looks after the many activities upon it. Nash Tatum, ranger, supervises the timber salvaging operation and assists with the fire control work. Thos. C. Ellis, area fire ranger, having been called into the Army December 16, 1942, his place was filled by Lambert Jones in February 1943.

In spite of the shortages of gasoline, equipment and labor, the salvage cutting of burned and damaged timber on the State Forest has continued throughout the biennium at an accelerated rate. Two contracts for 1,000 units (160 cu. ft.) have been filled and the third 1,000 unit contract has been let. Sales of sawlogs, light-wood, cross ties, posts and fuel wood have been carried on along with the pulpwood operation.

Practically all of the cutting of pulpwood, sawlogs and other forest products is done with our own men and equipment. The Ammon tract, however, was cut only after advertising under government regulations. The 111 acres was marked for cutting by Area Forester Miller, assisted by Jim Maynard, a 1942 graduate of State College. Some 300,000 bd. ft. of pine and hardwood timber was carefully estimated and marked and bids were invited through advertisement. On September 29, 1943, sealed bids were opened at the State Forester's office for this timber and the only bidder was the DeVane Hall lumber company of Fayetteville and Elizabethtown, N. C. The standing pine timber was, therefore, sold to them for \$10.50 per M. International $\frac{1}{4}$ " rule; oak, gum, maple, etc., for \$5.25 per M International $\frac{1}{4}$ " rule. Logging of this area was started on October 27, 1943 and completed June 17, 1944. 274,622 bd. ft. of pine and 4,953 bd. ft. of hardwoods were removed in this sale for a total payment of \$2,912.02.

Improvements and maintenance on this forest includes the completion of a new two-car garage at headquarters, 92 miles of truck trails maintained, 57 miles of fire break plowed, 20 miles of property lines resurveyed and brushed out, and 62,000 forest seedlings planted.

Forest Fires: The Area Forester reported a total of only 10 fires on the Bladen Lakes State Forest during the biennium covering a total of 264 acres. Much credit is due Miller and his crew for their fine work in controlling fires on this property, part of which success is due to the excellent cooperation given by the Branch of Fire Control. When we study the small loss in acreage suffered this past biennium, the continued use of the danger meter installed by the U. S. Forest Service near the Area Forester's office in February 1943 seems fully justified.

FINANCIAL REPORT ON TIMBER OPERATIONS

Bladen Lakes State Forest
July 1, 1942—June 30, 1944

RECEIPTS

Pulpwood—2,406.93 units.....	\$20,153.42
Sawlogs—1,384,307 bd. ft.....	27,630.11
Lightwood—284.11 cds.....	546.15
Crossties—5,242.....	4,233.11
Fuelwood—95.53 cds.....	113.46
Posts—921.....	65.10
Miscellaneous.....	268.13
TOTAL.....	\$53,009.48

DIVISION OF STATE PARKS

Recreation.....	\$ 4,263.78
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GRAND TOTAL.....	\$57,273.26
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EXPENDITURES

1942-1944

	Management	Fire Control	Parks *	Game **	Total
1. Cost of timber sales.....	\$ 27,512.30	\$.....	\$.....	\$.....	\$ 27,512.30
2. Administration salaries.....	3,293.39	.....	3,037.20	.....	6,330.59
3. Administration expenses.....	56.22	.....	760.00	.....	816.22
4. Field salaries and labor.....	4,603.95	2,582.74	1,378.74	3,230.00	11,795.43
5. Field expenses.....	125.98	.....	.....	.....	125.98
6. Fire supplies and patrol.....	1,874.87	3.60	.....	.....	1,878.47
7. Equipment operation.....	1,039.72	.....	356.89	.....	1,396.61
8. Equipment repair.....	3,721.87	14.32	128.32	.....	3,864.51
9. Supplies and materials.....	1,733.92	.....	1,536.32	.....	3,270.24
10. Equipment.....	3,768.97	.....	155.49	.....	3,924.46
11. Maintenance roads and trails.....	898.36	.....	27.88	.....	926.24
12. Maintenance improvements.....	229.06	.....	684.45	.....	913.51
13. Planting.....	268.90	.....	.....	.....	268.90
14. Restocking lakes.....	.....	.....	.....	174.55	174.55
15. Miscellaneous.....	.....	2.01	.....	.....	2.01
TOTALS.....	\$ 49,127.51	\$ 2,602.67	\$ 8,065.29	\$ 3,404.55	\$ 63,200.02

* Jones Lake Recreational Area and Singletary Group camp operated by Branch of State Parks.

** Game Warden under direction of Game and Inland Fisheries Division.

Land. It is now possible to give a full accounting of the expenditures made under authority of Chap. 228, Public Laws of 1937, which was enacted "to authorize and empower the Department of Conservation and Development to acquire by purchase or by the power of eminent domain" lands located within two miles of the shore line of Jones Lake and Singletary Lake in Bladen County. Progress reports have been made on this program in the three previous Biennial Reports but owing to delay in clearing title to some of these tracts and to an error in crediting the last check, the final Governmental reimbursement was not turned over to the State Treasurer until January 1944. At that time the recreation areas on the two lakes, to secure which the State law had been enacted, had been open for public use some four or five years.

FINAL REPORT ON CHAP. 228, P. L. 1937

Tract	Name	Area Acres	Optioned Price
1205	National Land Exchange }	505	{ \$1,950.00 **
1206	National Land Exchange } -----		{ 2,532.50 **
1207	Mike C. Burney -----	20	750.00 *
1208	Christian McKay -----	55	750.00 **
1209	Betsy Wright -----	50	650.00 **
		630	\$ 6,632.50
	Federal payment -----		\$ 6,632.50
	State payment -----		1,667.50
	Total price of land -----		\$ 8,300.00
	Legal fees -----		944.55
	Unexpended and reverted to State Treasury -----		755.45
			\$10,000.00

* Reverted to State Treasury October 1939.

** Reverted to State Treasury January 1944.

Two cases of trespass involving land boundaries have occurred during the biennium on the Bladen Lakes State Forest. One case is at present pending further action, while the other, it is hoped, may be settled without going to court.

DIVISION OF GAME AND INLAND FISHERIES

The primary objective of the Division of Game and Inland Fisheries is to protect and conserve game and fish, to try to increase the population of both, and to improve hunting and fishing conditions. This can be done under four heads: 1 Conservation, 2 Protection, 3 Education, 4 Research.

GAME

During the last two years this Division has faced unusual conditions caused by World War II.

At the last meeting of the Advisory Budget Commission in 1942, the Commissioner appeared before this body and requested an appropriation from the general fund for the coming biennium of \$250,000. The commission recommended an appropriation of \$200,000 to be used as an emergency fund for protection, and then to be used only after all promotional activities had been discontinued.

We anticipated a drastic drop in license revenue and our revenue did drop from \$297,000 in '41-'42 to \$191,000 in '43-'44.

By drastic economy and curtailing operations, we managed to carry on without invading this appropriation.

An appropriation for the next biennium is not being requested as we believe we have passed the low mark in license revenue.

The manufacture of sporting ammunition has been resumed and we feel that this will stimulate our license revenue.

From a recent survey made in each county we feel certain that small game is on the increase.

Whatever the cause, we know that our finances are in good shape—the record will bear this out—and we have every reason to believe that game is on the increase. If these two statements can be substantiated, it is felt that a measure of success has been accomplished.

COOPERATIVE AREAS

The Division is still furnishing protection on the Western Cooperative Areas composed of nearly 300,000 acres. They are as follows:

<i>Areas</i>	<i>Location</i>	<i>Acreage</i>
<i>Nantahala Area</i>		
Santeetlah Area,	Graham County west of Robbinsville.....	37,168
Fires Creek Area,	Clay County, north of Hayesville.....	13,720
Standing Indian Area,	Macon County, south of Franklin.....	28,432
Wayah Bald Area,	Macon County, west of Franklin.....	11,284
Cliffside Area,	west of Highlands.....	8
<i>Pisgah Area</i>		
Sherwood Forest Area,	Haywood County, south of Waynesville.....	30,875
Mount Mitchell Area,	Yancey and McDowell counties, west of Marion.....	25,200
Daniel Boone Area,	Avery, Burke and Caldwell counties, northwest of Morganton.....	46,500
Pisgah Preserve,	Henderson, Haywood and Transylvania counties.....	100,000
TOTAL.....		293,187

In addition to the above acreage, the State now owns in fee simple, approximately 80,000 acres of game land composed of Holly Shelter and Angola Pocosin and 5,000 acres recently purchased in Pamlico County.

In conjunction with the U. S. Forest Service, this Division has conducted managed deer, bear and squirrel hunts on some of these areas each season for the past two years. Judging from the number of hunters accommodated these hunts have been exceedingly popular.

In addition to the U. S. Forest Cooperative Areas in the Western part of the State, a project has recently been set up in Montgomery and Stanly counties for the restoration of deer. This Uwharrie Area is composed of 11,000 acres of U. S. Forest land, 4,000 acres of State-owned land and 20,000 acres of privately-owned land under lease to the State.

The Division, with the help of Federal Aid funds, proposes the trapping of 100 deer from the R. J. Reynolds estate in Surry County and establishing a herd on the 30,000 odd acres described above. At this writing the first two days' operation of the deer traps resulted in the catching of 15 adult deer which have already been transplanted in the Uwharrie Area. It would seem from this that our project is well on the way to success. The boundaries of the Uwharrie Preserve have been posted and will be under special protection.

The Holly Shelter Pocosin in Pender County, which was purchased and developed with Federal Aid money, is now owned and operated by the State.

For the past three years successful State managed hunts have been held at Holly Shelter. This year, 1944, a cooperative hunt will be held on the Bladen Lakes Area. This will be held in cooperation with the State Forestry Division. For the first time in the history of the Game Division, four State managed big game hunts will be available to the public; two in the west, the Pisgah and Mount Mitchell, and two in the east, Holly Shelter and Bladen Lakes.

PROPAGATION OF GAME

Very little artificial propagation has been carried on during the last two years due to two factors: First, the Pine Forest Game Farm at Hoffman was taken over by the Army when Camp Mackall was set up in 1942-43; second, scarcity of labor has held down activities.

At the Fayetteville Game Farm, however, there will be a limited number of quail for liberation this fall. While a lot of attention has been paid to big game, improvement in quail conditions has not by any means been overlooked. A project is in operation now whereby we hope to interest farmers in improving food and cover for this game bird. By cooperating with 18 Soil Conservation districts in the State we propose to furnish Lespedeza, both bicolor and sercia seed, to farmers who will provide food strips in their farm planning. It will be the sole duty of one employee to make these contacts and make proper distribution of the seed.

FINANCE

The Federal Government has reimbursed the Department for money spent on the Hoffman Reservation in the sum of \$35,000. Of this amount, \$9,000 went to the Division of Forestry and Parks and the residue to the Game Division. This money has been set up in a special fund for future Pittman-Robertson projects.

LAND PURCHASE

The Division has recently purchased 5,000 acres of game land in Pamlico County at \$1.50 per acre. This was bought with Federal Aid money, the Federal Government furnishing 75 per cent and the State 25 per cent. The Division proposes to add to this purchase from time to time and develop this section for both large and small game.

RESEARCH

Recently a project has been started under the leadership of John F. Dequine, a graduate biologist. The headquarters for this study will be at Holly Shelter where an intensive whitetail deer study will be carried on.

Research projects have been limited, again attributable to manpower shortage caused by the war and financial reasons.

PROTECTION

The protective force has been seriously depleted by the war. We have lost some of our very best men to the Army and Navy. When the war is over, we feel that this force can be greatly improved. The number of prosecutions and the amount of fines and costs will show that the forces have not been idle. Under the circumstances, they have done a good job. Total game and fish prosecutions for the biennium were 2,281, fines and costs imposed \$27,135.43.

GAME LAW PROSECUTIONS

July 1, 1942 to June 30, 1943

Number of Cases.....	556
Amount of Fines.....	\$ 3,617.90
Amount of Costs.....	3,393.10

July 1, 1943 to June 30, 1944

Number of Cases.....	512
Amount of Fines.....	\$ 5,142.62
Amount of Costs.....	3,436.49

MIGRATORY WATERFOWL

According to the Fish and Wildlife Service reports there has been a large increase in the duck population during the last two years, while the Canada geese have remained about the same. The increase has been reflected both on Currituck and Mattamuskeet. Good shooting was had at both places. Mattamuskeet Lake covers about 50,000 acres and is owned by the Fish and Wildlife Service. Of this area, 45,000 acres are reserved for an inviolate refuge.

The management of the hunting on the lake is conducted by the North Carolina Division of Game and Inland Fisheries. Guides and blinds are furnished. A lake permit is required, and the guides receive their remuneration from the hunters. Mattamuskeet and Currituck Sound are considered by a large number of sportsmen as among the best shooting spots on the Atlantic Seaboard.

HUNTING LICENSE RECEIPTS, 1942-1943

County	Non-Resident License	Resident License	County License	State Trapper	County Trapper	Combination License	Guide License	Total
Alamance.....		1,222	615	4	8	141		\$ 3,510.00
Alexander.....		116	186	2		39		541.00
Alleghany.....	2	29	152	2	11	57		439.00
Anson.....		136	922	2	12	57		1,395.00
Ashe.....	1	28	296		1	18		423.00
Avery.....	33	172	222			51		1,214.00
Beaufort.....	23	1,191	1,180	5	23	135	3	4,388.00
Bertie.....	6	272	1,624	1	25	247		3,052.00
Bladen.....	7	563	1,187			157	1	2,894.00
Brunswick.....		343	924		8	92	2	1,912.00
Buncombe.....	44	1,487	1,684	6	15	743		7,595.00
Burke.....		354	422	2	3	365		2,237.00
Cabarrus.....		868	462	2	4	317		3,163.00
Caldwell.....	1	436	756	5	1	304		2,560.00
Camden.....	50	170	173	11	20	12		1,372.00
Carteret.....	29	515	866	1	5	50	15	2,503.00
Caswell.....	13	216	427		8	20		1,136.00
Catawba.....	3	900	601	13	3	440		3,811.00
Chatham.....	47	378	477	7	6	71	1	2,189.00
Cherokee.....	13	252	382		2	147		1,526.00
Chowan.....	5	186	217	8	9	80		946.00
Clay.....	1	45	210		1	29		404.00
Cleveland.....		592	846	6	3	222		2,720.00
Columbus.....	20	758	1,489			322	4	4,291.00
Craven.....	12	1,154	1,377		24	204	2	4,535.00
Cumberland.....	4	984	895		9	252		3,697.00
Currituck.....	507	300	582	1	111	63	139	9,896.00
Dare.....	51	194	301	5	43	27	9	1,681.00
Davidson.....	5	849	907	2	5	120		3,056.00
Davie.....		215	399	1	6	13		883.00
Duplin.....	2	657	879			223		2,892.00
Durham.....		1,325	209	7	4	465		4,283.00
Edgecombe.....	3	544	1,091	2	39	292		3,184.00
Forsyth.....		2,149	780	17	2	382		6,279.00
Franklin.....	1	272	572	3	14	72		1,384.00
Gaston.....		1,427	645	5	4	203		4,131.00
Gates.....	55	133	544	4	13	43		1,802.00
Graham.....	17	164	244			51		980.00
Granville.....	3	258	656	1	7	73		1,447.00
Greene.....	1	286	450			225		1,712.00
Guilford.....	14	2,104	640	5	2	461		6,460.00
Halifax.....	9	619	1,409	9	9	297		3,718.00
Harnett.....		779	705	3	1	390		3,444.00
Haywood.....	2	417	787		2	228		2,339.00
Henderson.....	48	289	518	5	6	101	9	2,191.00
Hertford.....	47	254	650	6	16	119		2,270.00
Hoke.....	2	229	649			51	4	1,310.00
Hyde.....	129	169	659	1	39	41	65	3,461.00
Iredell.....		607	1,428	3	5	168		3,165.00
Jackson.....	4	99	180		8	132		850.00
Johnston.....		469	1,514	1	18	317		3,442.00
Jones.....	2	354	489		6	46	1	1,382.00
Lee.....		453	361	3	2	142		1,706.00
Lenoir.....	3	690	695	4	19	591		3,943.00
Lincoln.....		132	79	3	1	101		657.00
McDowell.....		404	557		1	151		1,820.00
Macon.....		60	471		4	48		743.00

HUNTING LICENSE RECEIPTS, 1942-1943—Continued

County	Non-Resident License	Resident License	County License	State Trapper	County Trapper	Combination License	Guide License	Total
Madison.....	26	87	378	-----	4	27	-----	\$ 1,031.00
Martin.....	6	432	932	15	25	347	-----	3,022.00
Mecklenburg.....	4	1,797	1,318	5	5	445	-----	6,332.00
Mitchell.....	1	128	233	-----	2	70	-----	718.00
Montgomery.....	-----	365	481	3	7	66	-----	1,432.00
Moore.....	9	651	389	2	-----	101	3	2,150.00
Nash.....	2	824	1,213	5	21	371	-----	4,061.00
New Hanover.....	-----	1,887	332	4	3	391	-----	5,297.00
Northampton.....	10	128	769	-----	10	86	-----	1,453.00
Onslow.....	1	650	781	-----	8	219	-----	2,769.00
Orange.....	-----	316	338	4	2	67	-----	1,187.00
Pamlico.....	3	276	528	2	18	5	-----	1,182.00
Pasquotank.....	15	790	310	9	12	128	-----	2,550.00
Pender.....	3	486	1,053	-----	-----	123	-----	2,439.00
Perquimans.....	2	116	258	2	4	10	-----	564.00
Person.....	1	271	496	6	3	31	-----	1,170.00
Pitt.....	-----	1,050	1,810	23	40	467	-----	5,460.00
Polk.....	2	96	432	1	5	118	-----	1,021.00
Randolph.....	26	731	728	2	7	110	-----	2,930.00
Richmond.....	-----	591	966	1	14	203	-----	2,788.00
Robeson.....	2	1,050	1,781	-----	-----	314	-----	4,853.00
Rockingham.....	2	641	837	7	4	95	-----	2,463.00
Rowan.....	-----	1,026	827	5	4	182	-----	3,448.00
Rutherford.....	-----	340	1,053	5	7	343	-----	2,791.00
Sampson.....	6	580	1,415	-----	-----	150	-----	3,115.00
Scotland.....	-----	232	798	1	7	33	-----	1,378.00
Stanly.....	-----	600	269	2	3	130	-----	1,871.00
Stokes.....	-----	110	304	-----	10	21	-----	607.00
Surry.....	5	428	522	4	17	82	-----	1,745.00
Swain.....	-----	156	273	-----	1	82	-----	833.00
Transylvania.....	102	184	366	-----	-----	97	10	2,605.00
Tyrrell.....	9	150	211	4	9	20	3	751.00
Union.....	2	293	1,105	5	13	80	-----	2,002.00
Vance.....	-----	587	930	9	5	95	-----	2,426.00
Wake.....	9	1,429	1,658	5	12	629	-----	6,577.00
Warren.....	2	251	1,192	1	21	35	-----	1,874.00
Washington.....	8	416	415	9	4	74	1	1,629.00
Watauga.....	-----	82	236	-----	-----	59	-----	577.00
Wayne.....	-----	685	787	-----	-----	380	-----	3,297.00
Wilkes.....	-----	257	522	1	11	88	-----	1,325.00
Wilson.....	3	588	910	1	-----	387	-----	3,295.00
Yadkin.....	-----	198	198	2	3	20	-----	666.00
Yancey.....	12	189	254	-----	-----	97	-----	1,103.00
Miscellaneous Sales.....	27	58	65	1	1	33	1	695.00
TOTAL.....	1,519	52,464	69,243	314	910	17,119	273	\$252,440.00

Lake Mattamuskeet.....	2,833.50
Western Refuges.....	3,940.75
Bush Blind and Shooting Point Licenses.....	844.00
Fur Dealers Licenses.....	2,081.00

\$262,139.25

Less Proportionate part of Combination Licenses Transferred to Inland Fisheries..... 17,119.00

GRAND TOTAL.....\$245,020.25

HUNTING LICENSE RECEIPTS, 1943-1944

County	Non-Resident License	Resident License	County License	State Trapper	County Trapper	Combination License	Guide License	Total
Alamance		871	300	4	5	188		\$ 2,628.00
Alexander		83	99	3	1	44		408.00
Alleghany	2	13	88	1	8	57		334.00
Anson		87	304	2	17	66		717.00
Ashe	3	24	185		3	24		356.00
Avery	26	191	144	1	7	81		1,176.00
Beaufort	30	1,065	466	10	42	144	1	3,597.00
Bertie	13	226	721	1	42	257		2,226.00
Bladen	15	383	538			169	1	2,041.00
Brunswick	1	258	564		16	76	1	1,360.00
Buncombe	49	1,189	1,119	8	14	773		6,603.00
Burke		335	423	3	4	426		2,388.00
Cabarrus		449	156	3	1	287		1,926.00
Caldwell	1	345	589	12	5	355		2,405.00
Camden	56	160	99	25	26	76		1,614.00
Carteret	17	497	627	2	17	36	15	2,099.00
Caswell	15	123	110		6	13		632.00
Catawba	1	571	299	14	3	441		2,827.00
Chatham	73	289	200	6	5	83	1	2,155.00
Cherokee	1	192	286		5	132		1,091.00
Chowan	7	181	102	6	13	90		883.00
Clay		26	108	1	1	56		333.00
Cleveland		408	438	6	8	277		2,119.00
Columbus	49	559	708			393	6	3,770.00
Craven	5	1,068	842	6	41	231	1	3,851.00
Cumberland	3	694	394		7	337		2,852.00
Currituck	559	483	481	5	127	73	123	10,935.00
Dare	47	284	269	10	61	43	6	1,853.00
Davidson	5	581	411	3	7	136		2,079.00
Davie		137	178	3	2	19		522.00
Duplin	3	394	276			235		1,814.00
Durham		1,007	129	9	8	526		3,761.00
Edgecombe	4	305	391	2	36	193		1,718.00
Forsyth		1,533	425	17	5	434		4,854.00
Franklin		103	166	3	18	61		600.00
Gaston		950	373	9	5	219		2,967.00
Gates	63	128	287	5	32	64		1,759.00
Graham	12	258	230			71	1	1,144.00
Granville		125	178	3	8	94		735.00
Greene		135	125			234		1,095.00
Guilford	15	1,622	340	5	9	552		5,498.00
Halifax	8	345	432	14	12	251		2,061.00
Harnett	3	405	266	1	2	349		2,115.00
Haywood	5	364	564		6	249		2,126.00
Henderson	38	237	355	7	5	124	5	1,827.00
Hertford	49	207	255	7	25	128		1,859.00
Hoke	8	209	307			64	4	1,057.00
Hyde	242	285	591	1	41	73	75	5,470.00
Iredell	1	311	621	4	4	205		1,893.00
Jackson	4	67	125	1	7	134		738.00
Johnston		155	526	2	19	262		1,665.00
Jones	5	307	304	2	10	62	1	1,210.00
Lee		280	117	9	3	158		1,184.00
Lenoir		397	280	8	30	587		2,919.00
Lincoln		85	51	8	2	93		528.00
McDowell	2	253	403		2	169		1,450.00
Macon	2	46	283		5	95		700.00

HUNTING LICENSE RECEIPTS, 1943-1944—Continued

County	Non-Resident License	Resident License	County License	State Trapper	County Trapper	Combination License	Guide License	Total
Madison.....	17	82	326	3	9	28		\$ 856.00
Martin.....	6	279	352	20	17	373		2,213.00
Mecklenburg.....	9	1,489	981	5	9	484		5,579.00
Mitchell.....	2	141	195	1	7	97		815.00
Montgomery.....	1	302	345	2	8	88	1	1,255.00
Moore.....	13	634	198	3	7	101	4	2,007.00
Nash.....	2	518	342	16	33	389		2,689.00
New Hanover.....		1,738	144	6	10	573		5,377.00
Northampton.....	12	77	233		12	98		885.00
Onslow.....	5	652	477	4	9	194		2,468.00
Orange.....	1	275	280	2	6	81		1,106.00
Pamlico.....	5	264	295	2	26	5		971.00
Pasquotank.....	28	679	182	30	28	79		2,343.00
Pender.....	8	433	604			150		2,040.00
Perquimans.....	9	102	103	5	8	13	1	517.00
Person.....	3	109	140	4	7	41		552.00
Pitt.....	2	656	799	29	68	524		3,936.00
Polk.....	11	73	302	3	12	124		1,015.00
Randolph.....	23	597	364	4	10	134		2,337.00
Richmond.....	2	414	447	1	19	178		1,880.00
Robeson.....	4	531	462			304		2,496.00
Rockingham.....	4	385	384	6	10	79		1,489.00
Rowan.....		670	425	10	6	190		2,377.00
Rutherford.....	2	240	662	9	12	340		2,243.00
Sampson.....	4	301	356			155		1,483.00
Scotland.....	2	149	216		9	40		682.00
Stanly.....		354	187	2		128		1,285.00
Stokes.....	2	47	94	2	9	24		314.00
Surry.....		266	216	4	22	81		1,047.00
Swain.....	6	118	187	1	5	81		769.00
Transylvania.....	100	118	315			100	10	2,401.00
Tyrrell.....	2	148	112	3	18	17	3	549.00
Union.....		208	578	3	24	96		1,339.00
Vance.....	4	296	266	5	6	73		1,164.00
Wake.....	9	969	952	6	14	578		4,805.00
Warren.....	9	169	563	4	19	35		1,191.00
Washington.....	9	340	192	16	6	100		1,367.00
Watanga.....		80	151			55		476.00
Wayne.....	3	342	308			353		2,096.00
Wilkes.....		119	146	3	13	103		728.00
Wilson.....	8	340	352	1		341		2,178.00
Yadkin.....		154	107	1	5	25		503.00
Yancey.....	1	153	183		1	117		857.00
Miscellaneous Sales.....	44	50	43	2	1	36	2	929.00
TOTAL.....	1,814	38,346	34,154	470	1,273	18,274	262	\$198,136.00

Lake Mattamuskeet.....	\$ 2,604.00
Western Refuges.....	5,021.75
Bush Blind and Shooting Point Licenses.....	888.00
Fur Dealers Licenses.....	2,784.00

\$209,433.75

Less Proportionate Part of Combination Licenses Transferred to Inland Fisheries.....	18,276.00
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GRAND TOTAL.....\$191,157.75

GAME BIRD PROPAGATING LICENSES

July 1, 1942 to June 30, 1943

Joseph P. Knapp, Mackey Island
 Jethro Almond, Albemarle
 H. C. Hill, Murfreesboro
 Edwin Pate, Laurinburg
 L. E. Erwin, Morganton
 Charles Waddell, Burlington
 Dr. Albert Keiser, Hickory
 J. H. Harris, Wilmington
 J. R. Black, Charlotte
 R. D. Davis, Winston-Salem
 Thomas Fleetwood, Hertford
 Durant Price, Charlotte
 A. J. Dickson, Spindale
 Ernest Miksell, Charlotte
 C. D. Barbee, Burlington
 D. C. Gibson, Charlotte
 Mrs. Tennie Fox, Siler City
 J. Craig Jones, Wake Forest
 F. T. Lyerly, Charlotte

John M. Maness, Archdale
 Horse Shoe Quail Farm, Carthage
 Joe L. Orr, Charlotte
 T. S. Haywood, East Rockingham
 Ell Bivens, Monroe
 Dr. J. R. Lowery, Salisbury
 J. E. Anderson, Salisbury
 Mr. Hodge, Salisbury, Route 5
 L. B. Saunders, Rockingham
 Marvin Snoddy, Mount Airy
 L. E. Erwin, Morganton
 Henry Murphy, Davis
 R. E. Whitley, Murfreesboro
 A. G. Gordon, Winston-Salem
 H. E. Gruver, Asheville
 J. Worth Mason, Burlington
 W. C. Best, Halifax
 Robert L. Ridings, Shelby
 Mrs. J. P. McDowell, Tarboro

July 1, 1943 to June 30, 1944

J. D. Little, Charlotte
 W. H. Gentry, Sanatorium
 G. S. Boren, Jr., Pomona
 Edwin F. Lucas, Greensboro
 Geo. A. Eastman, Beaufort
 Jethro Almond, Albemarle
 Jos. P. Knapp, Knotts Island
 Mrs. Tennie Fox, Siler City
 Boone D. Tillètt, Nags Head
 Edwin Pate, Laurinburg
 James S. Cline, Fallston

L. E. Erwin, Morganton
 D. C. Gibson, Charlotte
 E. R. Mickesell, Charlotte
 M. H. McDougald, Laurinburg
 H. F. Crowson and Will Thorpe,
 Statesville
 Harold Chapman, Kannapolis
 E. G. Wilson, Haw River
 Charles Waddell, Burlington
 Wade Talley, Reidsville

PERMITS TO KEEP GAME ANIMALS IN CAPTIVITY

July 1, 1942 to June 30, 1943

W. B. Harrell, Faulkland
 Floyd C. Forester, N. Wilkesboro
 Walter Farmer, Rockingham
 A. L. Brewington, Lumberton
 J. M. Thompson, Plymouth
 Thurman Briggs, Lexington
 T. L. Silvers, Raleigh, Rt. 4
 A. L. Mercer, Beulaville
 Raymond Pritchard, Elizabeth City
 W. M. Storey, Murfreesboro
 Dr. Victor Fisk, Elizabeth City

H. C. Taylor, Colerain
 W. L. Smallwood, Windsor
 E. R. Cox, Dublin
 J. M. Thompson, Burnsville
 Floyd King, Fayetteville
 J. U. Mace, Hendersonville
 Willie Lindsey, Hoffman
 Chas. A. Moore, Charlotte
 City of Kinston, Kinston
 Dr. J. A. Gill, Elizabeth City
 R. H. Gregory, Rocky Mount

H. T. Rice, W. Asheville
Greensboro Recreation Commission,
Greensboro
L. P. Hayes, Laurinburg
M. L. Gray, Gatesville
Claud Bundy, Gatesville

E. L. Parker, Eure
C. J. Sawyer, Sladeville
J. H. Little, Gumberry
Cora Holloman, Ahoskie
E. N. Jarrett, Asheville
Miss Patricia Lance, Asheville

July 1, 1943 to June 30, 1944

Eugene Nye, Lumberton
Millard E. Gorham, Arden
Dr. J. A. Gills, Elizabeth City
W. A. Buckner, Alexander
T. L. Silvers, Raleigh, Rt. 4
Charlie Hill, Snow Hill
J. H. Little, Garysburg
L. W. Dillingham, Swannanoa
Floyd Barnes, Wilson
James Daniel, Wilson
J. T. Overton, Southern Pines
H. M. Blakeney, Garysburg
S. L. Griffith, Murfreesboro

E. C. Houldshouser, Linville
Grover Wiseman, Ingalls
Edward Lenard, Rockingham
C. L. Nesbitt, Fletcher
Blair Simpson, Marshville
Allen Padgett, Willard
C. H. Brooks, Enka
M. M. Suttle, Fairview
Frank Marler, Jr., Hendersonville
H. M. Blakeney, Garysburg
W. R. Howard, Kelly
C. A. Deal, Newport

SCIENTIFIC COLLECTING PERMITS

July 1, 1942 to June 30, 1943

G. G. Rohwer, Burgaw
H. C. Rucker, Charlotte
James L. Stephens, Lumberton
J. W. Kistler, Raleigh
Dr. William Eschmeyer, Tennessee
Valley Authority, Norris, Tenn.
Earl R. Cady, Tennessee Valley
Authority, Norris, Tenn.
James A. Hardison, Wadesboro

Prof. A. S. Pearse, Durham
Merle W. Wing, State College, Raleigh
Thomas L. Quay, Edenton
Mrs. H. D. Crockford, Chapel Hill
J. J. Murray, Lexington
Frank Lipp, Detroit, Mich.
Leland J. W. Jones, Asheville
R. M. Schiele, Gastonia

July 1, 1943 to June 30, 1944

M. L. Miles, Vicksburg, Miss.
Ralph B. Heberling, Spartanburg, S. C.
Verne Davison, Spartanburg, S. C.
Lt. Harold Trapido, Camp Davis, N. C.
Thos. L. Quay, Edenton
Frank Lipp, Safety Harbor, Fla.
Mrs. H. D. Crockford, Chapel Hill

H. C. Rucker, Charlotte
Harry T. Davis, Raleigh
Roxie Collie Simpson, Raleigh
H. H. Brimley, Raleigh
G. G. Rohwer, Burgaw
J. J. Murray, Lexington, Va.
R. M. Schiele, Gastonia

INLAND FISHERIES

During the last biennium we lost the services of our valuable supervisor of fish resources, Dr. Willis King. Dr. King is now an officer in the U. S. Navy, stationed in the State of California. His work is being ably carried on by R. B. Armfield, former supervising biologist of the Division. Operations have been carried on at the several hatcheries in a satisfactory manner. Tabulations showing the distribution of warm water fish and trout are shown at the conclusion of this report.

Farm fish ponds have been widely advocated by the Soil Conservation Service and the number of ponds on farms has grown steadily, the demand for stock far exceeding the supply. Although our fishing license revenue has exceeded expectations, this revenue is barely sufficient to carry on present operations.

An unsuccessful attempt was made at the last session of the General Assembly to have legislation passed requiring fishing licenses for sport fishermen in every county. It is our belief that revenue will continue inadequate until this is done. A bill requiring State-wide licenses would, in our opinion, produce \$35,000 to \$40,000 in additional revenue.

We are still endeavoring to raise trout to legal size before releasing. This necessarily cuts down the total number of releases but gives better results.

It has been necessary to discontinue stream survey work in the western part of the State on account of lack of personnel. A brief resumé of activities at the hatcheries is given below.

MORRISON FISH HATCHERY, WAYNESVILLE

This is the largest and best equipped hatchery in the State. The plant has been operated to full capacity during the biennium. Ample water rights have been secured, the grounds improved, and all equipment has been operated.

PETE MURPHY HATCHERY, MARION

Although this is primarily a trout hatchery, a few bass and bream are also reared here. A new water line has been installed to rearing pools. The grounds have been kept orderly and in good condition and the plant operated throughout the season. Some of the trout hatched here are transferred to the Marmon Hatchery for rearing.

BOONE FISH HATCHERY, BOONE

On instructions from the Board this plant has been sold. The plant with six acres of land brought the sum of \$4,180.12. An inadequate water supply has prevented the successful operation of this plant over a number of years and it is the Division's thought that more trout for streams in this locality can be furnished from the Marmon plant at Pineola, which is under lease, than formerly.

MARMON HATCHERY, PINEOLA

During the last two years the Division has leased and operated the Marmon Hatchery at Pineola as a rearing station. This is an excellent station for the rearing of trout. It was formerly operated by Mr. Marmon as a commercial enterprise. We have had it under lease for the payment of taxes. These taxes have been refunded by the Avery County Commissioners. The lease expires during the coming year; and it can either be renewed or the option to buy exercised.

ROARING GAP HATCHERY, ROARING GAP

This plant has furnished the section around Roaring Gap with a good supply of trout. We think conditions at this plant have been very much improved during the last two years. The superintendent has been somewhat hampered by sickness in his family and labor shortage.

STEDMAN FISH HATCHERY, FAYETTEVILLE

We have not succeeded in getting the dam at Lake Rim repaired, although one attempt has been made by the Department engineer. The rearing pools have been

amply supplied by an electric pump which has been in operation about two years. The plant has been operated despite the condition of the dam. The present condition of the lake and dam is an eye-sore but will be remedied as soon as money and material are available. Blueprints are in the office for complete renovation of this plant as a part of our postwar plans.

MOUNT MITCHELL REARING STATION

Trout are transferred from Marion and Waynesville for rearing at this station and later distribution. This small station, while rendering a service, is also a show place for visitors.

CONSTRUCTION OF PROPOSED SMALLMOUTH BASS HATCHERY

The proposed smallmouth bass hatchery has not been started on account of lack of funds. Plans for construction of this plant have been made and the blueprints are in the office. This is also a part of our postwar planning. The site contains 250 acres, the Division owning this land in fee simple.

INLAND FISHING PROSECUTIONS

July 1, 1942 to June 30, 1943

Number of cases.....	588
Amount of fines.....	\$ 2,854.20
Amount of costs.....	3,181.35

From July 1, 1943 to June 30, 1944

Number of cases.....	733
Amount of fines.....	\$ 2,762.50
Amount of costs.....	4,810.42

FISH RELEASED FROM FEDERAL HATCHERIES

July 1, 1942 to June 30, 1944

	<i>Number</i>	<i>Pounds</i>
Brook Trout.....	345,920	9,307
Rainbow Trout.....	248,307	8,695
Brown Trout.....	40,622	512
Largemouth Bass.....	153,825	411
Smallmouth Bass.....	4,794	81
Crappie.....	36,700	86
Bluegill Bream.....	257,465	1,016
Rock Bass (Red eye).....	400	26
Shad.....	117,000	Fry
White Perch.....	16,000,000	Fry
Yellow Perch.....	3,754,200	Fry
Striped Bass.....	6,563,000	Fry

WELDON FISH HATCHERY, WELDON

During the past season the striped bass fishing near Weldon was exceptionally good until the high water came. The roe rock caught are carried to the plant where they are stripped of their spawn which is fertilized and hatched out. The fry are then released. A total of five million fry were released in the Roanoke, Tar and Neuse rivers by this process last season.

FISHING LICENSE RECEIPTS, Calendar Year 1942

County	Non-Resident License	Non-Resident Permit	State License	State Permit	County License	Total
Alamance.....		1	43	42		\$ 108.00
Alexander.....		3	32	148		141.00
Alleghany.....	5	15	30	14	64	171.00
Anson.....			21	19		51.50
Ashe.....	1	4	24	4	197	256.00
Avery.....	19	87	102	35	233	636.50
Beaufort.....	2	6	109	408		438.00
Bertie.....	1	9	22	29		72.50
Bladen.....	2	3	34	70		116.00
Brunswick.....	6	4	30	67		127.50
Buncombe.....	15	42	1,140	208	314	2,815.00
Burke.....	3	83	320	947	790	2,001.50
Cabarrus.....			238	258		605.00
Caldwell.....	1	17	186	34	252	663.00
Camden.....	1		4			13.00
Carteret.....	2	4	20	5		56.50
Caswell.....			2			4.00
Catawba.....		6	442	98	605	1,544.00
Chatham.....			13	39		45.50
Cherokee.....	133	1,455	461	128	1,478	4,584.00
Chowan.....	5	11	36	83		149.50
Clay.....	4	9	206	33	213	670.50
Cleveland.....			158	109		370.50
Columbus.....	5	18	136	994		812.00
Craven.....	2	9	132	346		456.00
Cumberland.....			121	61		272.50
Currituck.....	85	594	105	401		1,429.50
Dare.....	36	247	53	213		639.50
Davidson.....			60	194		217.00
Davie.....			7	2		15.00
Duplin.....	1	2	23	19		62.50
Durham.....			270	241		660.50
Edgecombe.....		2	105	162		293.00
Forsyth.....		1	196	222		504.00
Franklin.....			7	1		14.50
Gaston.....			124	64		280.00
Gates.....	12	30	5	40		120.00
Graham.....	118	563	147	179	115	1,651.50
Granville.....			15	14		37.00
Greene.....			36	217		180.50
Guilford.....	6		217	139		533.50
Halifax.....		20	201	179		511.50
Harnett.....			183	207		469.50
Haywood.....	46	167	741	289	1,089	3,112.50
Henderson.....	42	154	224	51	301	1,138.50
Hertford.....	3	3	37	28		106.00
Hoke.....			20	8		44.00
Hyde.....		41	80	789		595.50
Iredell.....			81	51		187.50
Jackson.....	56	271	243	342	776	1,984.00
Johnston.....		5	124	231		368.50
Jones.....			9	10		23.00
Lee.....	3		62	42		160.00
Lenoir.....	4	3	280	403		784.50
Lincoln.....			91	78		221.00
McDowell.....	10	78	170	245	648	1,238.50
Macon.....	15	107	222	56	436	1,090.00

FISHING LICENSE RECEIPTS, Calendar Year 1942—Continued

County	Non-Resident License	Non-Resident Permit	State License	State Permit	County License	Total
Madison.....	2	9	46	6	131	\$ 245.00
Martin.....			50	155		177.50
Mecklenburg.....		6	215	65		468.50
Mitchell.....		15	179	64	137	542.00
Montgomery.....			8	25		28.50
Moore.....		9	45	85		141.50
Nash.....		2	116	203		335.50
New Hanover.....		8	218	129		508.50
Northampton.....		1	44	67		122.50
Onslow.....		1	132	29		279.50
Orange.....			38	47		99.50
Pamlico.....			4	24		20.00
Pasquotank.....	4	1	84	14		196.00
Pender.....		1	30	124		123.00
Perquimans.....			4	4		10.00
Person.....			22	11		49.50
Pitt.....	1		231	237		585.50
Polk.....	108	457	137	474	357	1,865.00
Randolph.....			36	30		87.00
Richmond.....	8	21	114	237		407.50
Robeson.....	4	5	118	90		306.00
Rockingham.....			69			138.00
Rowan.....			60	59		149.50
Rutherford.....	97	445	469	917	330	2,656.50
Sampson.....		1	12	17		33.50
Scotland.....	2	4	22	121		118.50
Stanly.....			50	71		135.50
Stokes.....			2	3		5.50
Surry.....	5	10	64	13	47	216.50
Swain.....	28	192	352	111	499	1,590.50
Transylvania.....	21	94	253	118	271	1,035.00
Tyrrell.....	4	8	26	101		130.50
Union.....	1	3	43	148		168.00
Vance.....			31	13		68.50
Wake.....	5	6	251	104		585.00
Warren.....			8	1		16.50
Washington.....		12	39	35		107.50
Watauga.....	2	13	84	30	222	428.00
Wayne.....		4	126	241		376.50
Wilkes.....			94	32	300	504.00
Wilson.....	1	4	208	337		593.50
Yadkin.....			4	6		11.00
Yancey.....	1	12	67	55	157	335.50
Miscellaneous Sales.....	14	2	12	1		96.50
TOTAL.....	952	5,420	12,417	13,950	9,962	\$ 51,951.00

Lake Mattamuskeet.....	\$ 1,115.75
Western Refuges.....	3,258.50
To Proportionate Part of Combination Licenses from Game to Inland Fisheries.....	21,028.00

GRAND TOTAL..... \$ 77,353.25

FISHING LICENSE RECEIPTS, Calendar Year 1943

County	Non-Resident License	Non-Resident Permit	State License	State Permit	County License	Total
Alamance.....			56	40		\$ 132.00
Alexander.....		8	41	33		131.50
Alleghany.....	5	10	26	17	121	216.50
Anson.....		3	22	14		54.00
Ashe.....	13	4	34	4	268	407.00
Avery.....	20	86	152	31	345	850.50
Beaufort.....	4	2	79	245		302.50
Bertie.....	1	3	31	32		86.00
Bladen.....	1	6	38	59		116.50
Brunswick.....	1		37	37		97.50
Buncombe.....	14	23	1,233	248	470	3,153.00
Burke.....		39	398	765	737	1,954.50
Cabarrus.....	1		190	211		490.50
Caldwell.....		29	462	66	536	1,522.00
Camden.....	2		1			12.00
Carteret.....			7	6		17.00
Caswell.....	2		1			12.00
Catawba.....		1	446	106	522	1,468.00
Chatham.....			13	21		36.50
Cherokee.....	224	1,724	391	94	1,200	4,873.00
Chowan.....	4	7	36	94		146.00
Clay.....	1	104	146	106	595	1,049.00
Cleveland.....			178	159		435.50
Columbus.....	7	51	159	948		878.00
Craven.....	2	6	95	169		290.50
Cumberland.....		5	115	58		264.00
Currituck.....	71	396	113	271		1,112.50
Dare.....	23	254	77	199		622.50
Davidson.....			34	202		169.00
Davie.....			4	4		10.00
Duplin.....		2	29	32		76.00
Durham.....	3	4	283	154		662.00
Edgecombe.....		4	72	109		202.50
Forsyth.....			207	221		524.50
Franklin.....			9	4		20.00
Gaston.....			140	48		304.00
Gates.....	15	80	13	81		221.50
Graham.....	90	417	621	166	1	2,193.00
Granville.....			19	5		40.50
Greene.....			47	249		218.50
Guilford.....	1	2	176	134		426.00
Halifax.....	2	9	153	135		392.50
Harnett.....			164	120		388.00
Haywood.....	51	117	730	252	1,095	3,053.00
Henderson.....	38	197	240	67	314	1,214.50
Hertford.....	2	7	40	12		103.00
Hoke.....			22	5		46.50
Hyde.....	11	18	107	1,156		865.00
Iredell.....		6	109	38		243.00
Jackson.....	47	140	206	128	625	1,476.00
Johnston.....			108	204		318.00
Jones.....	1		7	8		23.00
Lee.....			48	28		110.00
Lenoir.....	3	2	233	381		673.50
Lincoln.....			80	76		198.00
McDowell.....	1	85	196	208	532	1,118.00
Macon.....	33	99	232	106	437	1,218.00

FISHING LICENSE RECEIPTS, Calendar Year 1943—Continued

County	Non-Resident License	Non-Resident Permit	State License	State Permit	County License	Total
Madison.....	3	12	59	11	262	\$ 412.50
Martin.....		1	35	73		107.50
Mecklenburg.....			184	33		384.50
Mitchell.....		8	196	55	120	547.50
Montgomery.....			5	21		20.50
Moore.....	1	2	71	79		188.50
Nash.....			118	176		324.00
New Hanover.....		18	294	80		646.00
Northampton.....	1	13	80	175		265.50
Onslow.....		3	76	23		166.50
Orange.....	1		61	61		157.50
Pamlico.....			2	18		13.00
Pasquotank.....	2		110	18		239.00
Pender.....	2	4	42	68		132.00
Perquimans.....	4		16	5		54.50
Person.....	2	1	35	8		85.00
Pitt.....	2		198	188		500.00
Polk.....	81	491	142	524	290	1,732.00
Randolph.....			38	25		88.50
Richmond.....	8	14	129	141		382.50
Robeson.....	3	3	124	70		301.00
Rockingham.....			25			50.00
Rowan.....			38	75		113.50
Rutherford.....	78	482	464	1,081	378	2,718.50
Sampson.....	1		24	15		60.50
Scotland.....	3	1	27	91		115.50
Stanly.....			39	63		109.50
Stokes.....			9	8		22.00
Surry.....	3	6	59	3	55	195.50
Swain.....	9	67	283	112	399	1,133.00
Transylvania.....	18	74	230	81	233	897.50
Tyrrell.....	10	6	24	69		138.50
Union.....	1	3	49	196		204.00
Vance.....			35	9		74.50
Wake.....	5	1	217	66		493.00
Warren.....			5	1		10.50
Washington.....	3	6	17	7		58.50
Watauga.....		21	124	41	291	580.50
Wayne.....		3	154	139		380.50
Wilkes.....			97	26	178	385.00
Wilson.....	2	2	155	309		476.50
Yadkin.....			4	12		14.00
Yancey.....		4	97	66	181	412.00
Miscellaneous Sales.....	11	1	5			66.00
TOTAL.....	948	5,197	13,102	12,738	10,185	\$ 52,695.00

Lake Mattamuskeet.....	\$ 1,332.00
Western Refuges.....	3,811.25
To Proportionate Part of Combination Licenses from Game to Inland Fisheries.....	17,119.00

GRAND TOTAL.....\$ 74,957.25

BOONE HATCHERY

Boone

Trout Distribution for Period	Brook Trout		Rainbow Trout		Brown Trout		Totals	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
July 1, 1942-Dec. 31, 1942	51,595	519	-----	-----	-----	-----	51,595	519
Jan. 1, 1943-June 30, 1943	5,788	70	-----	-----	-----	-----	5,788	70
July 1, 1943-Dec. 31, 1943	4,022	6	-----	-----	-----	-----	4,022	6
Jan. 1, 1944-June 30, 1944	-----	-----	-----	-----	-----	-----	-----	-----
TOTALS	61,405	595	-----	-----	-----	-----	61,405	595

MARMON HATCHERY

Pineola

July 1, 1942-Dec. 31, 1942	-----	-----	-----	-----	-----	-----	-----	-----
Jan. 1, 1943-June 30, 1943	-----	-----	-----	-----	-----	-----	-----	-----
July 1, 1943-Dec. 31, 1943	-----	-----	-----	-----	-----	-----	-----	-----
Jan. 1, 1944-June 30, 1944	5,250	923	-----	-----	850	33	6,100	956
TOTALS	5,250	923	-----	-----	850	33	6,100	956

MORRISON FISH HATCHERY

Waynesville

July 1, 1942-Dec. 31, 1942	184,025	2,190	129,700	1,040	315,825	3,505	629,550	6,735
Jan. 1, 1943-June 30, 1943	48,900	1,889	17,550	1,785	6,600	1,195	73,050	4,869
July 1, 1943-Dec. 31, 1943	41,006	903	2,700	103	1,000	35	44,700	1,041
Jan. 1, 1944-June 30, 1944	96,000	1,427	20,700	1,870	1,350	820	118,050	4,117
TOTALS	369,925	6,409	170,650	4,798	324,775	5,555	\$65,350	16,762

MURPHY HATCHERY

Marion

July 1, 1942-Dec. 31, 1942	1,920	254	29,385	184	-----	-----	31,305	438
Jan. 1, 1943-June 30, 1943	1,100	207	16,950	2,179	2,600	361	20,650	2,747
July 1, 1943-Dec. 31, 1943	3,855	868	388	119	2,616	46	6,359	1,033
Jan. 1, 1944-June 30, 1944	9,500	1,288	3,200	610	12,700	1,294	25,400	3,192
TOTALS	16,375	2,617	49,923	3,092	17,916	1,701	84,214	7,410

ROARING GAP HATCHERY

July 1, 1942-Dec. 31, 1942	20,180	359	30,376	476	-----	-----	50,556	835
Jan. 1, 1943-June 30, 1943	13,261	861	750	114	185	13	14,196	988
July 1, 1943-Dec. 31, 1943	100	50	6,530	1,505	600	300	7,230	1,855
Jan. 1, 1944-June 30, 1944	5,160	1,730	6,430	3,115	7,815	2,125	19,405	6,970
TOTALS	38,701	3,000	44,086	5,210	8,600	2,438	91,387	10,648

WARM WATER FISHES

STEDMAN HATCHERY

Fayetteville

Distribution for Period	Smallmouth Bass		Largemouth Bass		Bream		Crappie		Robbin		Totals	
	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
July 1, 1942- Dec. 31, 1942			35,450	310	199,000	915					234,450	1,225
Jan. 1, 1943- June 30, 1943					57,050	257					57,050	257
July 1, 1943- Dec. 31, 1943			15,875	310	146,250	549	6,000	12			168,125	871
Jan. 1, 1944- June 30, 1944			283,000	676	3,289	322	12,500	300	78	15	298,867	1,313
TOTALS			354,325	1,296	405,589	2,043	18,500	312	78	15	758,492	3,666

MURPHY HATCHERY

Marion

Distribution for Period	Smallmouth Bass		Largemouth Bass		Bream		Crappie		Totals	
	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
July 1, 1942-Dec. 31, 1942			3,293	178	199,000	915			202,293	1,093
Jan. 1, 1943-June 30, 1943	18,000	fry	74,050	fry	1,200	5	17,200	860	110,450	+ 865 fry
July 1, 1943-Dec. 31, 1943	4,500	fry	2,462	56	7,550	17	8,170	400	22,682	473 fry
Jan. 1, 1944-June 30, 1944	1,500	20	61,000	20	17,600	51			80,100	91
TOTALS	24,000	20	140,805	254	225,350	988	25,370	1,260	415,525	2,522

ROARING GAP HATCHERY

July 1, 1942-Dec. 31, 1942										
Jan. 1, 1943-June 30, 1943					2,530	27	1,880	100	4,410	127
July 1, 1943-Dec. 31, 1943							2,750	73	2,750	73
Jan. 1, 1944-June 30, 1944					500	10			500	10
TOTALS					3,030	37	4,630	173	7,660	210

SANDHILLS REARING PONDS

July 1, 1942-Dec. 31, 1942			1,152	612	9,268	250			10,420	871
Jan. 1, 1943-June 30, 1943										
July 1, 1943-Dec. 31, 1943										
Jan. 1, 1944-June 30, 1944										
TOTALS			1,152	621	9,268	250			10,420	871

DIVISION OF MINERAL RESOURCES

The work of the Division of Mineral Resources is divided into two main classes: (1) General—in which inquiries are answered, available information is furnished to interested persons, and services are rendered to the mineral industry, and, (2) Systematic Studies—in which detailed investigations are made of specific mineral resources or of specific areas.

GENERAL

The past biennium has largely coincided with the period in which the United States has been engaged in the present war and for this reason there has been an increase in the demands made upon the personnel of the Division of Mineral Resources in performing its usual routine services to the mineral industry and the interested public of the State. The number of small mine operators has been increased by the demand for strategic minerals, particularly mica and the metals, and the publicity given to strategic mineral shortages has served to increase the "mineral consciousness" of the general public.

The routine services rendered by the Division may be categorized as follows: (1) Replies to inquiries requesting information concerning mineral resources of the State and specific inquiries concerning the value or availability of particular properties. Approximately 2,000 such letters have been answered, many of which led to investigations in the field where further geological advice was given. (2) Examination of mineral specimens sent to the office for identification. About 400 such specimens were examined during the biennium and the senders were advised of their identity and potential value. (3) Field examination of mineral properties at the request of the owners. In addition to this information on specific problems, some 1,000 copies of the Divisional publications have been sent to interested people. These publications offer more comprehensive and systematic information concerning the mineral resources of the State. The number sent out would have been larger had not many of the older publications been out of print. There has also been a demand for systematic information on many subjects for which bulletins have not yet been prepared. It is hoped that the future may supply some of these deficiencies.

In addition to these more casual activities, services of more particular significance have been rendered to the mineral industry of the State at the request of mine operators and public agents. Among the more important mineral industries to which detailed advice and assistance have been given are mines producing tungsten, manganese, copper, titanium, mica, and talc. In addition, many other mineral industries were also served in less detailed manner.

Since many of the training centers of the armed services have been established within the State, the Division of Mineral Resources has been able to afford a variety of services to them. Among these have been the location of well sites, advice concerning the disposition of sewage, the location of quarry sites for the production of aggregate stone, and an examination for the site of a dam.

Communities and industries throughout the State have been served by the Division in the matter of the location of well sites for water supplies and similar assistance has been rendered to certain other State agencies such as the State Highway and Public Works Commission. The Division has also cooperated with Federal agencies whose work interests them in the geological affairs of the State. This is particularly true of the U. S. Bureau of Mines for which the Divisional personnel made geological logs of exploratory drill cores and offered advice concerning the location of drill holes.

Shortly after the outbreak of the war the State Geologist was designated Emer-

gency Coordinator of Mines by the War Production Board and in performing the duties of that office has rendered considerable assistance to the Federal Government in certifying mining operations for serial numbers entitling them to priorities. The Divisional personnel also served the War Production Board in appraising the significance of mineral properties for the Regional Technical Adviser of that office. Collaboration with Federal agencies also included cooperative planning with the Tennessee Valley Authority for the postwar period.

A number of new publications appeared during the biennium, the most important of which was Bulletin No. 42 entitled "Chromite Deposits of North Carolina." Others include Information Circular No. 3 entitled "Selected Well Logs in the Coastal Plain of North Carolina," Mineral Investigation No. 1, "Tungsten Deposit near Townsville, North Carolina," Mineral Investigation No. 2, "Manganese Deposits of North Carolina," and the following Reports of Investigation: No. 36, "Corundum in North Carolina," No. 37, "Magnetic Iron Ores in North Carolina," No. 38, "Copper Deposits in North Carolina," No. 39, "Deposits of Brown Iron Ore in North Carolina," No. 40, "North Carolina Vermiculite," and No. 41, "Manganese Deposits in North Carolina."

SYSTEMATIC STUDIES

From a long-time viewpoint the most important part of the work of the Division of Mineral Resources is the systematic and continuing effort toward surveying the mineral resources of the State and mapping its geology. Whatever time is not used in performing the general routine services described above is utilized toward this objective. Detailed geological studies are made in the field and comprehensive reports are published describing the findings.

During the past biennium these systematic studies have largely been directed toward the study of strategic mineral resources. The most important concerned the study of a highly significant tungsten deposit which had been discovered in Vance County, near Townsville. This property was mapped and the mineralogical and structural attributes of the deposit were worked out in detail. A mimeographed report was published as Mineral Investigation No. 1 and shortly after it was released the U. S. Bureau of Mines undertook an extensive exploration program. The deposit gives promise of being one of the outstanding tungsten deposits of North America.

A survey of the State's manganese resources included examination of properties in Alleghany, McDowell, Buncombe, Transylvania, Clay, Cherokee, Cleveland, Lincoln, and Wake counties. The findings have been described in a manuscript report as Mineral Investigation No. 2, and have been instrumental in influencing the U. S. Bureau of Mines to undertake an exploration and utilization program on certain of the more promising deposits.

In answer to a request for assistance from the talc industry of western North Carolina a study was made of a number of talc deposits in Madison County. This study will probably be extended in the present biennium and described in a joint report with studies of the Cherokee County talc deposit made by the geological staff of the Tennessee Valley Authority.

The intense interest in metals for the war program attracted attention to old copper mines and prospects in Chatham, Randolph, Davidson, and adjacent counties in the Piedmont section of the State. Because of the increased requests for information on that area, Dr. Willard Berry, Professor of Geology at Duke University, was employed on a temporary basis for three months during the summer of 1943 to examine mines and prospects in that area. During the summer of 1944 Dr. Berry was again employed on a temporary basis and with some aid from the regular per-

sonnel of this Division did some geological mapping of an area in southwestern Chatham County where prospecting for copper is most active.

Much of the systematic work of the Division is made possible by cooperation with certain Federal agencies which are interested in mineral resources. The Tennessee Valley Authority, through its Commerce Department, has been a most generous cooperator and during the past biennium made possible a survey of copper properties in the western part of the State which included detailed studies of the Cullowhee deposit in Jackson County, the Hazel Creek property in Swain County, and the Ore Knob deposit in Ashe County, as well as more casual investigations of a number of less significant properties. The report of these studies has not yet been published but is on file in manuscript form at the office of the Tennessee Valley Authority in Knoxville and the office of this Division in Raleigh. It is believed that the study of the Ore Knob property influenced the U. S. Bureau of Mines in their decision to undertake an exploratory drilling program shortly afterward.

At the request of the War Production Board, a survey was made of the old corundum properties of western North Carolina in order to determine their present status in terms of accessibility and reserves. Properties in Clay, Macon, Jackson, Transylvania, and Buncombe counties were investigated and a report was published as Report of Investigation No. 36. Shortly after it was released the U. S. Bureau of Mines began an extensive exploration program. Although the corundum study was made by the personnel of the Division of Mineral Resources, the Tennessee Valley Authority defrayed one-half of the cost of the field work.

The Division of Mineral Resources also received information from a study of sillimanite deposits of North Carolina and Georgia made by the Tennessee Valley Authority and the Georgia State Division of Mines, Mining, and Geology.

The Division of Mineral Resources has also engaged in extensive cooperation with the United States Geological Survey on mineral investigation. Under this program a survey was made of the mica mines of the Sylva-Franklin district, the report of which is being edited for publication as a State bulletin. Early in 1943 this program was directed toward mapping mines producing strategic mica, and individual maps of 125 of the more important mica mines of the State have been completed.

Time and funds have not permitted publishing the maps. However, they have been made available to the public as quickly as possible by being placed on open file in Washington, D. C., Spruce Pine, N. C., and Raleigh. When a particular map is placed on file a copy is sent to the owner of the mine. All information collected on mica as a result of this program has been made available to the Colonial Mica Corporation, an agent of the Metals Reserve Company, charged with bringing about an increased production of mica for the war program. A cooperative report describing a study of the Spruce Pine kaolin deposits is being edited for publication. The field work, however, was completed during the previous biennium.

In addition to the above described cooperative mineral investigations, the U. S. Geological Survey has also cooperated with the Mineral Resources Division in a systematic study of the ground water resources of the State. In continuation of this long term program, during the past biennium a study was made of the ground water resources of six counties in the north central Piedmont: Stokes, Caswell, Alamance, Guilford, Forsyth, and Rockingham. A report has also been prepared describing similar work done during the previous biennium in Halifax, Wilson, Edgecombe, Northampton, and Nash counties. Also a progress report has been prepared describing the general status of information concerning ground water resources throughout the State as a whole, and a statement of the recorded data from a number of observation wells in North Carolina has been included in a Federal publica-

tion. In addition to these planned investigations of ground water resources, a number of additional emergency studies were made on the behalf of military establishments and municipalities to assist them in their water supply problems.

In the summer of 1942, an inquiry was received from the War Production Board relative to the possibility of using North Carolina iron ore as a source of sponge iron. This inquiry was brought about by the then existing iron scrap shortage. While North Carolina has produced iron ore in varying amounts since colonial days and has within its borders more than 100 old iron mines and prospects, the problem raised by the inquiry called for special information. The whole problem was referred to Governor J. M. Broughton who, after careful consideration, employed H. A. Brassert and Company to examine and report on the iron ore and coal resources of the State. The examinations were made early in 1943.

The report recommended three iron ore areas and the Deep River Coal Field as promising and worthy of detailed examination including core drilling. The iron ore areas recommended for detailed study were the magnetite deposits of the Big Ore Bank in Lincoln County, the magnetite deposits of the Cranberry area of Avery County and the limonite deposits of Cherokee and Clay counties. It was recommended that detailed magnetic surveys be made of the Big Ore Bank and Cranberry areas before core drilling was begun. Since limonite is not magnetic, a trenching and pitting program was recommended for the Cherokee and Clay county areas.

The Division of Mineral Resources arranged a seven-man field party and the magnetic survey work was begun the first of June and completed the end of September, 1943.

The U. S. Bureau of Mines took over the drilling program with funds appropriated by the U. S. Congress, and drilling on the Big Ore Bank and in the Cranberry area was begun in November, 1943. Drilling in the Deep River Coal Field was begun in April, 1944. In the Cherokee and Clay county areas the U. S. Bureau of Mines has carried out a mapping program basic to test pitting and trenching the areas. The program of exploration had not been wholly completed at the end of the biennium and is being continued.

During the spring of 1944, reduction tests for producing sponge iron from North Carolina ores were carried on by the U. S. Bureau of Mines at the plant of the Isenhour Brick and Tile Company in Salisbury. These tests have been very satisfactory and some excellent sponge iron has been made. This program is being continued.

In addition to the drilling program undertaken on iron ore and coal, the U. S. Bureau of Mines has carried out several other drilling programs in the State. These have included drilling for (1) copper at Ore Knob in Ashe County, in the Virgilina district of Person County, and at the Union Copper Mine at Gold Hill, (2) tungsten near Townsville, Vance County, and (3) molybdenum in Halifax County.

Late in 1943 and early in 1944 intensive interest was shown by a number of local people and several major oil companies in the possibilities of finding oil in eastern North Carolina. The office of the Division of Mineral Resources was visited by many geologists interested in discussing the geology of the Coastal Plain and securing reports containing detailed information on that area. Since Volume III, describing the geology of the Coastal Plain, is out of print and no longer available for distribution, the Division, in cooperation with the U. S. Geological Survey prepared Information Circular No. 3, "Selected Well Logs in the Coastal Plain of North Carolina," as a partial answer to the requests being received. By the end of the biennium much of the public-owned water bodies and State-owned lands in the tidewater region had been leased to either the Coastal Plain Company, a local co-partnership, or to the Standard Oil Company of New Jersey. The leasing of private lands by several oil companies was also proceeding at a rapid pace.

DIVISION OF STATE ADVERTISING

As in other phases of State work, the war has had a profound effect on the State's advertising program.

With advent of travel difficulties, emphasis in promotion was immediately shifted to industrial aspects in an effort to assure that nation-wide conversion to war industries would not leave this state behind.

"The North Carolina Plan," as it was called in advertising, focused attention on idle plant sites in this state with the result that many of them were taken up and put to work. Manufacturers seeking subcontractors placed orders in this state. Many others have future plans which include North Carolina. Details are covered in the Commerce and Industry report.

The mineral scarcity led to a series of advertisements pointing to undeveloped mineral resources. Consequences of this step have been widespread and are still observed. That program led to a mineral survey and the cooperation of federal agencies which seem likely to continue for many years. One result, for instance, was the establishment at State College of a U. S. Bureau of Mines experimental station. Another was the establishment of a pilot plant for sponge iron in Salisbury.

The results illustrate that advertising is of such a nature that often the direct result sought is replaced by an indirect return equally or more beneficial.

INDUSTRIAL AND MINERAL

During the biennium, the Division placed 94 industrial and mineral advertisements in 19 leading magazines with a total circulation of 2,558,665.

A breakdown of the program follows:

INDUSTRIAL AND MINERAL ADVERTISING (June 1942-July 1944)

Magazine	Circulation	Times Run	Total Audience
<i>Time Magazine</i>	1,059,355	14	14,830,970
<i>Business Week</i>	123,404	15	1,851,060
<i>Newsweek</i>	562,838	16	9,005,408
<i>United States News</i>	203,174	15	3,047,610
<i>Nation's Business</i>	411,349	13	5,347,537
<i>Fortune</i>	165,782	15	2,486,730
<i>American Wool and Cotton Reporter</i>	10,148	1	10,148
<i>Manufacturers Record</i>	8,971	2	17,942
<i>American Forests</i>	13,644	1	13,644
<i>Blue Book of Southern</i>		2	
TOTAL.....	2,558,665	94	36,611,049

AGRICULTURAL ADVERTISEMENTS

An aggressive agricultural program was started during the biennium, with the thought that North Carolina needed more diversified farming, especially more dairy, beef, poultry and horticultural farms. Running in the three leading farm magazines, the display advertisements reached 4,852,177 readers.

Response to this campaign was brisk. However, as the war land boom developed it was apparent that there were few desirable farms for sale and prices were rising, as they were in other states. Building restrictions made it difficult, if not impossible, for incomers to settle. Real estate dealers had little to offer inquirers. Consequently the agricultural campaign was tapered off.

There continues a brisk and unfulfilled demand for farm land in this state. Authorities now agree that the postwar migration is going to be heavy, and that demands for farms will soar to "dangerous" proportions. It is evident that North Carolina must continue its agricultural program on a sound basis so that this state will not be on the minus side in any shift in agricultural populations.

Because of factors mentioned above, it is difficult to nail down statistical results of the agricultural campaign. Thousands of letters were received. Many of the writers visited the State, and some of them bought land. The Division is in touch with many more who are still planning to move to this state when it is possible to do so.

This phase will be discussed later in the report. Following is a report on agricultural advertising space:

AGRICULTURAL ADVERTISING—(June 1942-July 1944)

Magazine	Circulation	Times Run	Total Audience
<i>Hoards Dairyman</i>	239,417	4	957,668
<i>Country Gentleman</i>	2,025,663	7	14,179,641
<i>Farm Journal</i>	2,587,097	5	12,935,485
TOTAL.....	4,852,177	16	28,072,794

CAMP ADVERTISING

The Division used three magazines with a circulation of 4,058,863 five times.

Through the cooperation of the Asheville Chamber of Commerce, inquiries in answer to these ads were serviced with a special camp booklet. The camp industry in North Carolina is larger than is generally supposed, and it not only brings thousands of children into the state but indirectly brings thousands of adults (their parents) to nearby resorts, and also builds up valuable contacts for future generations.

Following is the camp schedule:

CAMP ADVERTISING—(June 1942-July 1944)

Magazine	Circulation	Times Run	Total Audience
<i>Parents Magazine</i>	647,269	2	1,294,538
<i>Redbook</i>	1,560,484	2	3,120,968
<i>Cosmopolitan</i>	2,058,863	1	2,058,863
TOTAL.....	4,266,616	5	6,474,369

TRAVEL ADVERTISING

Travel advertising has been confined largely to keeping alive interest in this State as a travel goal, in anticipation of the business which it is generally agreed will be available after the war. Thirty-one metropolitan newspapers, with a total circulation of 15,932,671 were given 122 insertions.

Response has been far beyond expectations, and it has been difficult to find suitable places for people who have continued to come to this State for their vacations.

The advertising schedule follows:

TOURIST ADVERTISING—(June 1942-July 1944)

Newspaper	Circulation	Times Run	Total Audience
<i>New York Herald Tribune</i>	296,886	6	1,781,316
<i>New York Times</i>	423,725	6	2,542,350
<i>New York World Telegram</i>	402,281	3	1,206,843
<i>Akron Beacon</i>	129,269	2	258,538
<i>Cincinnati Enquirer</i>	124,549	6	747,294
<i>Cincinnati Times Star</i>	151,376	5	756,880
<i>Cleveland Plain Dealer</i>	401,613	6	2,409,678
<i>Cleveland Press</i>	255,803	3	767,409
<i>Dayton News</i>	159,048	2	318,096
<i>Philadelphia Inquirer</i>	482,204	4	1,928,816
<i>Philadelphia Bulletin</i>	649,900	4	2,599,600
<i>Pittsburgh Press</i>	241,530	5	1,072,650
<i>Pittsburgh Post Gazette</i>	225,687	3	677,061
<i>Wilmington Journal</i>	70,717	2	141,434
<i>Washington Post</i>	156,323	7	1,094,261
<i>Washington Star</i>	190,669	7	1,334,683
<i>Washington Times-Herald</i>	492,679	7	3,448,753
<i>Chicago Tribune</i>	921,057	5	4,605,285
<i>Indianapolis Star</i>	129,166	2	258,332
<i>Baltimore Sunday-American</i>	209,579	5	1,047,895
<i>Baltimore Sun</i>	339,675	5	1,698,375
<i>Detroit News</i>	389,628	5	1,948,140
<i>Detroit Free Press</i>	360,553	3	1,081,659
<i>St. Louis Post Dispatch</i>	266,528	3	799,584
<i>St. Louis Globe Democrat</i>	251,903	3	755,709
<i>Louisville Courier Journal</i>	286,577	3	859,731
<i>Florida Times Union</i>	103,440	1	103,440
<i>Miami Herald</i>	119,921	1	119,921
<i>Atlanta Journal</i>	194,036	3	582,108
<i>Atlanta Constitution</i>	155,553	2	311,106
<i>Christian Science Monitor</i>	147,079	3	441,237
TOTAL	15,932,871	122	37,698,184

INQUIRIES

The biennium has been marked by a decrease in direct inquiries handled by this office. The inquiries themselves, however, have tended to become more substantial and responsive. More and more of them have required special letters and special information to be properly answered.

In the biennium, the advertising campaign has brought 19,757 direct inquiries to the division, which include tourists and home-seekers, but not industrial, which are

handled by Commerce and Industry. This is an average of 823 per month. Since the campaign started in 1937, the Division has answered 167,928 direct inquiries.

By far the greatest number of inquiries have been and continue to be from people who want to visit North Carolina and want help in finding a suitable place to stay. A considerable portion of these are outdoorsmen, seeking information on hunting and fishing places, guides, boats, accommodations.

Prospective visitors are answered directly from the Division with literature, letters, and folders and from a file of local information. Specific inquiries often are referred to communities in which there seems to be direct interest. In the last year or so, however, local facilities for handling such inquiries have decreased, and consequently much more detailed information must be answered directly by the Division.

HOMESEEEKERS

Special material has been prepared for agricultural home-seekers. Judging from persistent interest, there is a strong demand for farms in this State. This type of inquiry comes from (1) professional farmers desiring a move, (2) people wanting to retire on small farms, (3) service men planning to strike out for themselves after the war.

There is some demand for undeveloped land, but it is small and inquiries seem to be confined to people who do not know much about the expense and difficulty of clearing, and developing cheap land. Unfortunately, many persons think that rich farmland is dirt cheap in the South.

The Division has attempted to put all these people in touch with sellers of suitable farms, at the same time furnishing such general information as it could. The State Agricultural Department and the various extension departments at State College have been most cooperative. In practice, a bulletin which briefs the needs of farm seekers is issued to farm agents, real estate men, chambers of commerce, and others at intervals of from a few days to two weeks, with the request that interested persons follow up the inquiries with direct offers.

Since July 1, 1942, the Division has issued 54 such bulletins, listing approximately 1,350 prospective home-seekers considered serious enough in their intentions to warrant follow-up.

Formerly, a similar bulletin listing prospective travelers was issued for hotels, resorts, chambers of commerce and others interested. This was discontinued with the restriction in resort facilities, but will be resumed as soon as it is feasible to do so.

There is considerable demand for modest homes and small subsistence farms from elderly people preparing to retire. These come from persons in all walks of life, including civil service retirees, railroad people, disabled veterans, and wealthy people with assured incomes.

There is also evidence that a large number of younger people in this country have saved money during the war-boom days, either in cash or war bonds, who plan to make a "fresh start" with this capital which usually is modest. The Division is doing all it can to awaken North Carolinians to the possibilities of duplicating, in a small measure, the experience of California and Florida in getting this substantial sort of settlers who will be permanent assets to the commonwealth. However, our means for doing this are limited, and relatively few people realize the significance of postwar mass migration. At one time the Division had a full-staffed "Hospitality Committee" for such work, but now it is all done in the Division.

It is apparent that persons contemplating retirement write to a number of states and then make their decision. Obviously, they are shopping around, and it is up to us to make out as good a sales case as our competitors do.

LOCATION OF PROSPECTS

Because of geographical location, North Carolina has different appeals to persons from different sections, and the program attempts to take advantage of such information as we have on this preference.

Because of somewhat similarity of terrain, North Carolina pulls few people from New England in the summer, but does pull New Englanders in the winter. Contrariwise, our summer resorts appeal strongly to South Carolinians, Georgians, Floridians, Alabamans, Mississippians and Virginians. Many of these are regular visitors who do not contact us for information. Good response is also had from New York, Pennsylvania and New Jersey. Population of the states must of course be considered a factor in evaluating markets.

Ohio has always been a strong patron of our mountain resorts, partly because of a tradition which started when special excursions were run into western North Carolina. The sons and daughters of those early excursionists are coming back to visit the honeymoon spots of their parents.

However, both inquiries and visitors come from every state in the union—usually in rough ratio to the distance involved. Convenience of railroad, bus and highway schedules is also a factor which sometimes runs contrary to actual mileage.

Our coastal resorts continue to be patronized largely by natives, though there is a steady patronage from outside, mostly from sport fishermen. Presence of service men nearby has been a big factor recently. Our coastal resorts are either small or unorganized for promotion work, and resort facilities are inadequate at the present time.

Following is an analysis of travel and home-seeker inquiries by states in the bien-nium ending June 30, 1944.

INQUIRIES BY STATES—(June 1942-July 1944)

Alabama.....	161	Nebraska.....	221
Arizona.....	45	Nevada.....	24
Arkansas.....	90	New Hampshire.....	118
California.....	369	New Jersey.....	751
Colorado.....	95	New Mexico.....	75
Connecticut.....	265	New York.....	2,264
Delaware.....	46	North Carolina.....	4,421
District of Columbia.....	363	North Dakota.....	104
Florida.....	339	Ohio.....	961
Georgia.....	200	Oklahoma.....	146
Idaho.....	54	Oregon.....	110
Illinois.....	901	Pennsylvania.....	1,114
Indiana.....	347	Rhode Island.....	103
Iowa.....	275	South Carolina.....	107
Kansas.....	160	South Dakota.....	90
Kentucky.....	204	Tennessee.....	197
Louisiana.....	104	Texas.....	311
Maine.....	133	Utah.....	51
Maryland.....	273	Vermont.....	120
Massachusetts.....	341	Virginia.....	373
Michigan.....	628	Washington.....	157
Minnesota.....	304	West Virginia.....	199
Mississippi.....	107	Wisconsin.....	459
Missouri.....	294	Wyoming.....	48
Montana.....	72	Total.....	19,757

INQUIRIES BY FOREIGN COUNTRIES

Canada.....	171	Africa.....	3
Cuba.....	9	Bahamas.....	1
England.....	8	Portugal.....	1
APO.....	11	Mexico.....	5
Guatemala.....	1	South Africa.....	5
Hawaii.....	4	Trinidad.....	2
Puerto Rico.....	16	Colombia.....	6
Maritious.....	1	Jalisco.....	2
Alaska.....	8	Fiji Islands.....	1
Brazil.....	7	Peru.....	3
Salvador.....	1	Dominican Republic.....	1
USN.....	20	Nigeria.....	2
Canal Zone.....	4	Venezuela.....	1
Nova Scotia.....	1	Chili.....	1
New Zealand.....	8	Ireland.....	1
Argentina.....	4	Uruguay.....	1
Switzerland.....	1		
Australia.....	8	TOTAL.....	320
Netherlands, West Indies.....	1		

The prospective expansion of travel facilities, the completion of the Blue Ridge Parkway, the addition of other far-pulling attractions naturally will widen our market. The influence of the airplane—still debated—will be felt. For instance, we now have poor transportation from the great Chicago market. Economical air transport systems will bring such markets immediately on a par with points which have direct train service.

TRAVEL INDUSTRY

The travel industry was estimated to have been worth \$125,000,000 to North Carolina in 1940. Competent travel officials believe this sum can be doubled within two years after peace, and may go higher.

Travel agents, reported in a recent survey made by *Time Magazine*, believe overseas travel facilities will not be available for two or three years after the war. This means the pent-up travel business will largely go to the states, Canada or Mexico. Eighty per cent of the travel agents predicted greatly increased travel in peace time.

Tom Girdler estimates 12 million automobiles as the immediate postwar demand. At the same time, railway officials promise "faster trains, rock-bottom prices, increase in passenger comfort." The aircraft industry expects air travel to increase ten fold within six to eight years, according to the survey.

There will be the urge and also the means to travel.

VALUE OF TOURIST TRADE

Before the war, it was estimated the average vacationist spent \$8 per day, stayed five days on his visit. It is anticipated the postwar traveler will spend more, stay longer.

The San Diego California club breaks down the tourist dollar as follows:

	%		%
Clothing and furnishings.....	13.3	Public utilities.....	8.7
Hotels.....	11.3	Food products.....	8.5
Auto and Accessories.....	10.4	Gasoline and oil.....	5.0
Restaurants.....	9.7	Professional.....	3.2
Amusements.....	9.6	Laundry and cleaning.....	3.0
Real estate and rentals.....	8.9	Drugs and sundries.....	1.6

Miscellaneous 6.8

PUBLICATIONS

The Division in the past two years has distributed approximately 325,000 pieces of literature, not including highway maps. This includes some stock items as well as new publications. Literature quickly gets out of date in this age of swift transformations, and it is essential that it be constantly revised.

During the biennium, the following new publications were published:

150,000	Service Men's folder (for men training in this state)
10,000	Opportunities for Beef Production
10,000	Opportunities for Dairymen
10,000	Opportunities for Horticulture
10,000	Opportunities for Poultrymen
20,000	Tax Map of North Carolina (single sheet)
10,000	Folder postcard (free for service men)
<hr/>	
310,000	Total

In addition to these publications, the division has on hand various but generally low supplies of older standard publications including:

- Variety Vacationland (for tourists)
- Outdoors in North Carolina (hunting and fishing)
- Agricultural Opportunities (out of date, but still used)
- What's Doing in North Carolina (out of date)
- Historical Markers

We also have on hand a very limited supply of older publications, not generally distributed:

- Story of Tobacco
- Early editions of Variety Vacationland
- North Carolina—A Good Place to Live (McLean Administration)
- Reprints of the *National Geographic* article on N. C.

and others. Through cooperation of communities, we try to keep on hand a stock of community folders. Miscellaneous literature available including the U. S. Weather Reports, Historical Commission Literature, maps, etc.

BULK DISTRIBUTION

In addition to distribution of individual booklets in answering inquiries, considerable bulk literature is distributed. Chambers of Commerce are supplied with modest supplies. Other shipments go, upon request only to out-of-state travel bureaus, newspapers, AAA clubs, and similar outlets. Distribution to military centers is discussed later.

In this connection, we would like to call attention to the large number of inquiries received here from residents of North Carolina. The Division conceives its work to be that of selling North Carolina to the rest of the world. The selling of North Carolina to North Carolinians seems to be one of education, rather than of promotion and advertising. There seems, however, to be a lack of suitable literature for the teaching of the various courses in North Carolina which are conducted in our public schools, and we get many requests for literature from North Carolina school children which the division is financially unable to fulfill. The Division partly has met this problem by sending mimeographed sheets and out-of-date material to these children.

NEWS BUREAU

Co-efficient with display advertising and publication work, the News Bureau attempts to stimulate and satisfy editorial curiosity about this state.

This is done by:

- (1) Preparation and placing of stories and pictures about North Carolina.
- (2) Suggestions to editors of newspapers and magazines about possible stories in North Carolina.
- (3) Assisting staffers assigned to do such stories.
- (4) Working with radio, newsreel, book publishers and other outlets toward the same goal.

PRODUCTION

The most laborious work naturally is in the actual production of material, which involves the collection and writing of material, the collection, processing and captioning of illustrations. Since June 30, 1942, the News Bureau has issued 401 press releases, an average of 12 per month. In the same period, some 15,000 photographs have been released.

It must be remembered that the Division covers not only publications of general interest, but hundreds of publications of special interest, such as trade publications, which require special articles.

We issue with more or less regularity, releases to 86 regular mailing lists, including 1,554 publications.

<i>Type of Outlet</i>	<i>No. on List</i>	<i>Type of Outlet</i>	<i>No. on List</i>
State dailies (and Sundays).....	39	USO secretaries.....	57
State weeklies.....	142	Sunday eds. (out-of-state).....	17
Rod and Gun Editors.....	70	Feature eds.....	20
Fish and Hunt Magazines.....	22	Oddity Features.....	17
Filler list.....	23	Picture Mags.....	7
Business Magazines and Editors.....	35	Juvenile Mags.....	8
Roto Editors.....	26	Farm Mags.....	21
Financial and Banking Mags....	30	Poultry Mags.....	18
Municipal Mags.....	9	Farm Papers and Mags.....	35
Mining Mags.....	7	Metal Mags.....	16
Ceramic Mags.....	12	Aviation Mags.....	31
Movie (newsreels).....	6	Jewelry.....	9
Science Editors and Mags.....	24	Hotels.....	11
Travel A and B (newspaper).....	66	Golf.....	6
Travel Mags.....	38	Grocery.....	14
AAA publications.....	25	Farm Page Editors.....	34

Total number of outlets---- 86
Total number of publications 1,554

respond positively are removed from the list.

POLICY ON PUBLICITY

continue to get good results.

and of its opportunities.

RESPONSE

This policy, followed since 1937, has resulted in a large and growing interest in the state on the part of editors. While no record has been kept of inquiries along this line, a check of the past few weeks shows spontaneous or provoked requests for editorial material has averaged four per day. This means that 24 editors a week are writing the News Bureau seeking material about this state for publication. This, of course, is in addition to our own releases.

In practice, the News Bureau deals largely with syndicates and other mass outlets. There are in this country only six large syndicate outlets (with various subsidiaries) and all six of them regularly accept and use North Carolina material. These six syndicates cover 95 per cent of the newspapers of America.

There are, however, many outlets which want a more complete service, or at least a more specific service on a certain subject, than is rendered by a syndicate. For this reason, we offer material directly to many outlets when this seems justified.

OTHER OUTLETS

Promotion is not confined to journals. Encyclopedia publishers, textbook publishers, free-lance writers, radio commentators, map-makers, calendar publishers and plain curiosity seekers write in for a variety of service. These letters, of course, are not included in the listed inquiries. While movie newsreel men are not as interested in domestic subjects as heretofore, we continue to keep in touch with them and have placed a few short subjects. This phase of activity will be resumed strongly when it is possible to do so.

PHOTOGRAPHY

During the biennium, the Division obtained the services of John G. Hemmer, veteran New York news photographer, succeeding Ben Patrick, who resigned to go into private business. The result of Hemmer's employment was an immediate expansion in our photo releases as well as acquisitions to the file.

The foto library, which is perhaps the most complete of any such file in the country, is steadily gaining in subjects and value and is used more than ever. At present an average of 200 pictures per week are sent out to publications, a total of over 10,000 per year.

Because pictures can become over-used and out-of-date, it is necessary to continually rephotograph subjects.

STATE MOVIE

The State film, "Variety Vacationland," which was produced and presented to the department by Dick Reynolds, has been an extremely valuable piece of publicity. Upon request of the U. S. Army, the Division had made up 10 extra prints of this movie which were presented to the Army for showing to service men the world around.

At present we have 32 prints of this film. Twelve are on loan to distributing agencies, such as the YMCA, Universities, and so on. Twenty prints are kept in the office for direct booking.

In the biennium, this film has been shown to 1,202 audiences in 30 states, Canada and the District of Columbia, with a total attendance of 357,198. This is the recorded total; some depositories do not make reports on bookings and attendance. Possibly 500,000 persons saw the film during the period.

FOR SERVICE MEN

Early in the emergency, it was realized that North Carolina occupied a unique position inasmuch as hundreds of thousands of young men from other states were temporarily stationed in N. C. training camps. It was felt that their presence offered an opportunity to make friends who would sometime become ambassadors of good will for North Carolina.

Accordingly, the Division has made up and loaned to USO clubs, camp libraries, officer's clubs and other military auxiliaries fifty 30" x 40" fotomurals depicting scenes in the State. One hundred thousand pictorial folding postcards with scenes of North Carolina were printed and distributed free to service men for mailing to their friends back home. One hundred and fifty thousand special pamphlets which fold into No. 10 envelopes were also published and distributed. This folder, largely pictorial, gave brief but elucidating information about the state.

So successful was this service men's campaign that after the close of the biennium the Division later printed up 50,000 special 20-page pictorial booklets for service men only. Before the job was off the press, the demand from USO clubs, redistribution centers, Red Cross officials, and others, was so great that the order had to be doubled.

Our own prints of the movie film have been in great demand throughout the training centers in North Carolina, and these places have priority on its use. In addition, we have a selectoslide, which automatically flashes colored North Carolina scenes on a frosted screen, and this is available for use at such centers and other places.

SUMMARY

A national survey recently made shows that almost every state in the union either now or for the future has plans for state promotion campaigns. The far West is organizing for a fight to retain the industrial favors and the population it has gained as result of upbuilding of war industries. Not only states, but individual communities, have ambitious plans for postwar development.

It is with this idea in mind that the Division has shaped its recent program. It is obvious that there will be much more competition in the field and for that reason every effort must be exerted to meet it. The past two years has put the Division in position, with growing resources and experience, to do the job.

PERSONNEL

During the biennium Bill Sharpe returned to the division as manager, replacing Garland B. Porter, resigned. John Hemmer replaced Ben Patrick as assistant manager and photographer. Mr. Patrick's services resulted in the addition of many agricultural and pictorial photographs to the film library. Mrs. Faye Branca was added to the staff to do foto library work and layouts.

DIVISION OF WATER RESOURCES AND ENGINEERING

INTRODUCTION

When water resources are mentioned, the average person thinks chiefly of water power and public water supply. While the highest use of water has always been recognized by public opinion and the courts to be for a potable supply for municipal and domestic use, there are many other uses of the water resources of a state which must be taken into consideration in any wise program of conservation and development. If municipalities are to grow and industries are to flourish, there must be some economic and safe means for carrying away their wastes. Rivers form the cheapest and most frequently used channels for removal of domestic sewage and industrial waste. Such use of a river is entirely reasonable and proper so long as the public health or interest is not adversely affected. On the other hand, both municipalities and industries require sources of pure water supply, and the public interest requires water in which fish may live and where resort developments may be safely constructed. These diverse and proper uses of water resources present a most complex problem to any state agency attempting to consider the best interest of the public as a whole.

The work of the Water Resources Division is directed chiefly to these problems and others related thereto. It seeks to collect essential data, to make studies of all these situations, to consider the effect of each proposed development upon other associated uses, and to show the way to conserve these water resources so that they may not be exploited and wasted but may be dedicated to the best use for the largest number of people in perpetuity. It is difficult to dramatize for public appreciation the normal functions of an essentially scientific agency. To protect the public, to ensure a sound and beneficial use of the water resources of the State, it is essential that the members of the General Assembly and other leaders in the State appreciate the significance of the work of the Water Resources and Engineering Division.

Although the essential work of the Water Resources and Engineering Division is the collection of data and the studying of such data on the streams of the State, there are other activities of vital importance to be carried on from the engineering standpoint. During this biennium most of these activities have been discontinued because of the lack of personnel. Such work as coastal studies and mapping could not be carried on, but this Division is trying to keep in touch with other agencies that are doing work in these fields and, as soon as personnel is available, will continue making studies.

A brief outline of the activities of the Division under the several projects carried on during the biennium follows:

STREAM GAGING

In virtually all phases of water resources use, a knowledge of the day-by-day variations in the quantity of water flowing is the basis upon which must be predicated any sound procedure for allocation or development. To be of the greatest value, observations of flow must be continuous and carried on for a long period. A record less than 10 years duration is of doubtful value; a record of 30 years is approaching a sufficiently long period to present a reasonably true picture of stream flow char-

acteristics. In North Carolina there are only 9 records, all made on large streams, exceeding 30 years in length. One of these was flooded out by a power development, and one is marred by a break of several years.

The first object of the Division has always been, and still is, to collect as much and as accurate data relating to stream flow as possible with available funds, personnel, and other objectives. By far the largest part of the funds of the Division have each year been spent for this purpose. This work is carried on cooperatively with the U. S. Geological Survey under the direction of the District Engineer, E. D. Burchard. Every dollar spent by the State on this work is matched on a dollar-for-dollar basis by the U. S. Geological Survey. Other agencies are also cooperating in this work and are contributing materially to the upkeep of stations in the State. If it were not for these other agencies contributing approximately \$27,000 annually, a large number of the present 131 active gaging stations would have to be discontinued. The largest contributors for this work are the Tennessee Valley Authority and the U. S. Engineers. Besides these, various cities, power companies, and paper mills make substantial contributions for records in their watersheds. A list of all active gaging stations is published with this report to show the location, cooperating agencies, and date of establishment.

To be useful, stream flow records must be readily available in published form. The Division issued, in 1925 and 1936, publications of records prior to these dates. These publications should be brought up to date, as there will be a large demand for this information after the war. Industries will be looking for new sites, and if this information is easily accessible, the State will have a much better opportunity of getting the industry to locate here. Unless more personnel can be obtained, it is impossible to publish these records, but it is hoped that another engineer can be found in time to have all this ready.

CHEMICAL WATER ANALYSIS

Knowledge relating to the chemical quality of surface and underground waters is of increasing importance in efforts to attract new industries to the State. Numerous industries require water supplies of certain specific quality, suitable to their particular processes and needs. One of the principal reasons for selection of a site near Asheville by the Enka Corporation was the availability of a satisfactory industrial water supply as indicated by analyses furnished by the Water Resources Division.

If North Carolina is to compete with neighboring states in presenting data to attract new industries, there must be undertaken a more thorough investigation of the chemical quality of its streams. A step forward in this direction was made during this biennium. An agreement was made with the U. S. Geological Survey to start a systematic study of the waters of the State, beginning July 1, 1943. Under this agreement the State has contributed \$4,000, which is matched by the U. S. Geological Survey. A laboratory set up at State College has run daily samples collected at three selected river locations in the Piedmont area. Besides these daily samples, a large number of individual samples of both surface and underground waters has been run. This year we have started collecting daily samples at four new locations in the Piedmont and Coastal areas. This is a good start and should be greatly accelerated if the needs of the State are fully met. An increase of appropriation has been asked for and, if granted, will greatly help in securing sufficient data about our streams. This increase amounts to \$1,000, or one-fourth of the pres-

ent appropriation, and, if granted, will mean that we will be able to increase our output at least fifty per cent. This increased output will be valuable for new industries immediately after the war.

STREAM SANITATION AND CONSERVATION

The rapid increase in the number and size of cities and industries throughout the State has brought about greatly increased pollution of the surface waters. Something will have to be done about this before we reach the point where all our streams will be so badly polluted that no more industries can come into our State. This situation is rapidly approaching, and each new industry brings in new problems. Already a number of law suits have been filed against industries that are polluting streams, and these will probably increase if very much low water is encountered in our streams. It should be the work of the State to help clear up this situation by helping industries find a solution to their problems. There are now no adequate laws to control this problem, and cooperative research may find a happier solution.

Recently the Tennessee Valley Authority called a meeting of several State agencies with their representatives to discuss this problem. The Tennessee Valley Authority has equipped a traveling laboratory that can be moved to any location and a thorough study made of the wastes of any industry. This agency is taking the lead in the State and trying to clean up the rivers in its section. Each industry is to be contacted and its cooperation in cleaning up the rivers requested. Should the industry agree, the Tennessee Valley Authority will make a study of its wastes and try to find an economical solution. All State agencies agree that this approach to the problem is the best at the present time, with industries fully cooperating. This work will be costly and should be extended throughout the whole State. By cleaning up our rivers, more industries will locate in our State.

GROUND WATER INVESTIGATION

The Division continues to collect records of ground water elevations on 10 abandoned wells throughout the State in order to observe the trends of ground water elevations and to study the relationship between ground water elevations. The increased dependence of many cities, industries, and private individuals upon ground water resources in many parts of the State, especially in the lower Piedmont and Coastal areas, makes imperative a thorough investigation of these resources and the adoption of State laws governing the use of flowing wells. The experience of other coastal states which have suffered serious losses of ground water supplies through failure to control them points to the urgency of adoption of such laws to prevent similar losses in North Carolina.

EVAPORATION RECORDS

The Division has maintained evaporation stations at Lake Michie, Chapel Hill, and Lake Badin, collecting records from land and water surface. During this biennium only two of these stations are operating, but it is hoped that in the very near future we will be able to get the other one in operation. The two operating stations have long records and are, for this reason, becoming increasingly important. Due to lack of personnel, we have not been able to make studies of these records, but the collection of the data makes this a worthwhile project. All of the stations are located in the Piedmont section of the State, and in order to get a better picture of the evaporation, several stations in the Mountain and Coastal regions are needed.

BEACH EROSION

Nothing has been done on this project since 1940. At the present time, surveys should be run wherever possible, especially at Wrightsville Beach, where new groins have been constructed and no survey has been made to determine the effect of these upon the action of the beach. Due to the lack of personnel, no surveys could be made, but as soon as personnel can be obtained, extensive studies of sand movements and offshore currents should be made.

TENNESSEE VALLEY AUTHORITY

A number of TVA activities affect North Carolina. The most spectacular, of course, is the construction and operation of dams. At the present time, the TVA is constructing Fontana Dam on the Little Tennessee River, which will be the highest such structure east of the Rocky Mountains. It will be 460 feet high and 2,330 feet long and will create a lake 29 miles long, with an area of 10,800 acres and a useful storage capacity of 1,160,000 acre-feet. The dam was authorized by Congress in December 1941 in order to provide additional electric power for war industrial production. It is expected to be closed this autumn.

Apalachia Dam and powerhouse, on the Hiwassee River below Hiwassee Dam, have been completed and are in operation. The powerhouse is located a number of miles downstream from the dam proper. The TVA is now operating two completed dams in North Carolina; Hiwassee, which was completed in 1940, and Chatuge, a storage project without power installation, completed early in 1942. Apalachia and Chatuge both were authorized as emergency projects in 1941 when the need for electric power for purposes of preparedness for war became evident.

In connection with Fontana Dam, a new kind of relationship between public and private enterprise was entered into by the TVA and the Aluminum Company of America. Under the agreement by which the TVA obtained the Fontana dam site from the Aluminum Company, it was agreed that upon completion of the dam the TVA would direct the operation of the five-dam hydro-electric system of the company. Operation of the company system will thus be integrated with that of the TVA to obtain maximum usefulness for all of the projects, and the TVA and the company will divide the increased power made possible by integration. As of June 30, TVA had approximately 6,000 employees in North Carolina, most of them on the construction of the Fontana Dam and preparation of the reservoir.

The extreme southwest portion of North Carolina is served by TVA power, Murphy and vicinity by a municipal distribution system and the towns of Brassville, Hayesville, Shooting Creek, and Wayne by the Blue Ridge Electric Association, Young Harris, Georgia.

TVA phosphatic fertilizers have been tested and demonstrated in North Carolina by 4,905 farmers in cooperation with the State Agricultural Extension Service. A total of 3,286 of the test-demonstration farms are now active. Together with unit farm demonstrations, area demonstrations are being conducted to determine the result of scientific farming and erosion control on an entire community. The work is being carried on in 41 counties, 15 of which are located within the Tennessee Valley and 26 outside. So far, TVA has supplied approximately 16,875 tons of triple-superphosphate and 5,157 tons of metaphos, a material containing 62 per cent available plant food, to the demonstration farmers. The TVA, in cooperation with the State College and the U. S. Department of Agriculture, has completed soils surveys in 10 counties, mapping 5,486 square miles.

Approximately 2,900 landowners, in cooperation with the Agricultural Extension Service and with aid from the Civilian Conservation Corps, have planted more than 11,600 acres of eroded land to nearly 13,500,000 seedlings provided by the TVA from its nurseries. Woodland management demonstrations have been established on five farms.

The TVA has cooperated with state agencies in mineral researches, such as those on kaolins, vermiculite, olivine, and mica. New and improved farm machinery developed by the TVA in cooperation with other agencies is in use among North Carolina farmers, one example being a barn hay-drier. Recently experiments with the barn hay-drier in North Carolina proved that it could be used to advantage in drying barley and oats in bags. A small trailer-threshing machine developed by the TVA is manufactured commercially by a company at Statesville, North Carolina, and a number of the machines are in use on North Carolina farms.

The TVA has given planning assistance to several towns affected by TVA reservoirs, among them Murphy, where considerable readjustments were required.

STREAM GAGING STATIONS

TABLE I

Station	Date Established	Cooperation
Abbotts Creek, Lexington.....	1940	C. & D.
Bear Creek, Hemp.....	1939	USAE Wil.—C. & D.
Beetree Creek, Swannanoa.....	1926	TVA—C. & D.
Boylston Creek, Horseshoe.....	1943	TVA
Broad River, Boiling Springs.....	1925	C. & D.
Broad River, Chimney Rock.....	1927	C. & D.
(Second) Broad River, Cliffside.....	1925	C. & D.
Brown Creek, Polkton.....	1935	C. & D.—Soil Conservation Serv.
Buffalo Creek, Greensboro.....	1928	C. & D.
(North) Buffalo Creek, Greensboro.....	1928	C. & D.
Cane Creek, Fletcher.....	1942	TVA
Cane River, Sioux.....	1934	TVA—C. & D.
Cataloochee Creek, Cataloochee.....	1934	TVA—C. & D.
Cape Fear River, Fayetteville.....	1889	USGS—Federal Type
Cape Fear River, Lillington.....	1923	USAE Wil.—C. & D.
Cape Fear at Lock No. 3, Tarheel.....	1937	USAE Wil.—C. & D.
Cape Fear (Northeast), Chinquapin.....	1940	USAE Wil.—C. & D.
Catawba River, Catawba.....	1934	C. & D.—USWB
Catawba River (South Fork), Lowell.....	1942	USAE Charleston
Contentnea Creek, Hookerton.....	1928	C. & D.
Contentnea Creek, Wilson.....	1930	USAE Wil.—C. & D.
Crab Creek, Penrose.....	1942	TVA
Cullasaja Creek, Cullasaja.....	1921	TVA—C. & D.
Cullasaja Creek, Highlands.....	1927	TVA—C. & D.
Dan River, Francisco.....	1927	C. & D.
Dan River, Leaksville.....	1929	C. & D.
Dan River, Wentworth.....	1939	USAE Norfolk—C. & D.
Davidson River, Brevard.....	1920	C. & D.—TVA
Deep River (East Fork), High Point.....	1928	Soil Cons. Serv.—C. & D.
Deep River (West Fork), High Point.....	1928	Soil Cons. Serv.—C. & D.
Deep River, Moncure.....	1930	USAE Wil.—C. & D.
Deep River, Ramseur.....	1922	C. & D.
Deep River, Randleman.....	1928	Soil Cons. Serv.—C. & D.
Dial Creek, Bahama.....	1925	C. & D.
Drowning Creek, Hoffman.....	1939	USAE Charleston—C. & D.
Elk Creek, Elk Park.....	1934	TVA—C. & D.
Eno River, Hillsboro.....	1929	C. & D.
Fisher River, Copeland.....	1931	C. & D.
First Broad River, Lawndale.....	1940	USAE Charleston—C. & D.
Fishing Creek, Enfield.....	1918	USGS Federal Type—USWB
Flat River, Bahama.....	1925	C. & D.
Flat River at Dam, Bahama.....	1925	C. & D.
Forbush Creek, Yadkinville.....	1940	Flood Control Coord. Comm.
French Broad River, Asheville.....	1903	USGS Federal Type—TVA
French Broad River, Bent Creek.....	1934	TVA—C. & D.
French Broad River, Blantyre.....	1920	TVA—C. & D.
French Broad River, Calvert.....	1924	TVA—C. & D.
French Broad River, Hot Springs.....	1934	TVA—C. & D.
French Broad River, Rosman.....	1936	C. & D.
Green River, Mill Spring.....	1939	USAE Charleston—C. & D.
Haw River, Benaja.....	1928	C. & D.
Haw River, Haw River.....	1928	C. & D.

TABLE I—*Continued*

Station	Date Established	Cooperation
Haw River, Pittsboro.....	1928	USAE Wil.—C. & D.
Hazel Creek, Proctor.....	1942	TVA
Henry Fork, Henry River.....	1925	USAE Charleston
Hiwassee River at Chatuge Dam, Hayesville.....	1942	TVA
Hiwassee River, Hayesville.....	1934	TVA—C. & D.
Hiwassee River, Murphy.....	1940	TVA
Hiwassee River, Hiwassee Dam.....	1934	TVA—C. & D.
Hominy Creek, Candler.....	1942	TVA
Horsepen Creek, Battle Ground.....	1934	C. & D.
Ivy River, Marshall.....	1934	TVA—C. & D.
Jonathan Creek, Cove Creek.....	1930	TVA—C. & D.
Big Laurel Creek, Stackhouse.....	1934	TVA—C. & D.
Linville River, Branch.....	1922	C. & D.
Little River, Penrose.....	1942	TVA
Little River, Princeton.....	1930	USAE Wil.—C. & D.
Little Sugar Creek, Charlotte.....	1924	C. & D.
Little Tennessee River, Fontana.....	1938	TVA—C. & D.
Little Tennessee River, Iotla.....	1929	TVA—C. & D.
Little Tennessee River, Judson.....	1896	TVA—C. & D.
Little Tennessee River, Needmore.....	1944	TVA
Little Tennessee River, Prentiss.....	1944	TVA
Lower Little River, Linden.....	1928	USAE Wil.—C. & D.
Lower Little River, Manchester.....	1938	C. & D.—USWB
Lumber River, Boardman.....	1929	USGS—Federal Type
Mayo River, Price.....	1929	C. & D.
Middle Creek, Clayton.....	1939	USAE Wil.—C. & D.
Mills River, Mills River.....	1934	TVA—C. & D.
Mills River (South Fork), The Pink Beds.....	1926	TVA—C. & D.
Mud Creek, Naples.....	1938	TVA—C. & D.
Nantahala River, Nantahala.....	1942	TVA
Nantahala River, Rainbow Springs.....	1940	TVA—C. & D.
Neuse River, Clayton.....	1927	USAE Wil.—C. & D.
Neuse River, Goldsboro.....	1930	USGS Federal Type—USWB
Neuse River, Kinston.....	1930	USAE Wil.—C. & D.
Neuse River, Northside.....	1927	C. & D.
New River (South Fork), Jefferson.....	1929	C. & D.
New River (North Fork), Crumpler.....	1928	C. & D.
Noland Creek, Bryson.....	1935	TVA—Phillip Rust—C. & D.
Nolichucky River, Poplar.....	1925	TVA—C. & D.
North Toe River, Altapass.....	1938	TVA—C. & D.
Notteley River, Ranger.....	1918	TVA—C. & D.
Oconalufy River, Cherokee.....	1921	TVA—C. & D.
Pee Dee River, Rockingham.....	1927	C. & D.
Pigeon River, Canton.....	1928	TVA—C. & D.
Pigeon River, Hepco.....	1927	TVA—C. & D.
Reddies River, North Wilkesboro.....	1939	USAE Charleston—C. & D.
Reedy Fork Creek, Gibsonville.....	1928	C. & D.
Richardson Creek, Marshville.....	1940	Flood Control Coord. Comm.
Roanoke River, Roanoke Rapids.....	1930	USGS Federal Type
Roanoke River, Scotland Neck.....	1940	USAE Wil.
Rockfish Creek, Hope Mills.....	1939	USAE Wil.—C. & D.
Rocky River, Norwood.....	1929	C. & D.

TABLE I—*Continued*

Station	Date Established	Cooperation
Rocky River, Turnersburg.....	1940	Flood Control Coord. Comm.
Sandymush Creek, Alexander.....	1942	TVA
Scott Creek, Sylva.....	1928	TVA—C. & D.
Shooting Creek, Hayesville.....	1922	TVA
Smith River, Spray.....	1939	USAE Norfolk—C. & D.
Snowbird Creek, Robbinsville.....	1942	TVA
South Toe River, Newdale.....	1934	TVA—C. & D.
Swannanoa River, Biltmore.....	1934	TVA—C. & D.
Swannanoa River (North Fork), Black Mountain.....	1926	TVA—C. & D.
Tar River, Greenville.....	1935	USAE Wil.—C. & D.—USWB
Tar River, Nashville.....	1928	USGS—Federal Type
Tar River, Tarboro.....	1931	USAE Wil.—C. & D.
Tar River, Tar River.....	1939	USAE Wil.—C. & D.
Third Creek, Cleveland.....	1940	Flood Control Coord. Comm.
Tuckaseegee River, Bryson.....	1897	TVA—C. & D.
Tuckaseegee River, Dillsboro.....	1928	TVA—C. & D.
Tuckaseegee River, Tuckaseegee.....	1934	TVA—C. & D.
Uwharrie River, Eldorado.....	1938	USAE Charleston—C. & D.
Valley River, Tomotla.....	1918	TVA—C. & D.
Waccamaw River, Freeland.....	1939	USAE Charleston—C. & D.
Watauga River, Sugar Grove.....	1940	TVA—C. & D.
Yadkin River, High Rock.....	1919	USAE Charleston
Yadkin River, Wilkesboro.....	1929	C. & D.
Yadkin River, Yadkin College.....	1928	C. & D.
Yadkin River, Patterson.....	1939	USAE Charleston—C. & D.
Yadkin River (South), Cooleemee.....	1928	C. & D.
S. Yadkin River, Mocksville.....	1938	C. & D.



